

# Tradition and Tech Drive Japan's Industry Forward

Japan's manufacturing philosophy is now converging with modern tools like digital transformation (DX) and artificial intelligence, helping to reshape global manufacturing systems into models that prioritize greater efficiency, improved productivity, stronger resilience and more sustainable outcomes. *By Daniel de Bomford and Bernard Thompson*

The rhythm of the assembly line is the music by which the Japanese economy moves. Deeply embedded cultural practices like *mottainai*, living without waste, and *kaizen*, continuous improvement, separate Japan from its rivals and give it an edge as the global manufacturing paradigm shifts. A song once defined by the cacophony of scale has given way to a new movement that values efficiency and consistency. Mindful of the environment and supply chain security, Japanese companies are conserving and recovering materials, while automation and AI are transforming labor, compliance and safety. Decades before the rest of the world began to join the symphony, Japan was already writing the chords and progressions and now stands ready to lead the new movement.

**"True manufacturing is not defined by speed or scale alone, but by the discipline to refine every detail and the responsibility to deliver materials that society can depend on for generations."**



**Tatsuyoshi Yabashi**,  
Chairman, Yabashi Holdings Co., Ltd.

## Efficiency Embedded in Culture

Japanese manufacturing is often defined by patience, precision and a long view. Yabashi Holdings Co., Ltd. reflects that tradition through businesses in lime, metals and timber, with an integrated lime operation that runs from mine development and extraction to finished materials for major customers such as Nippon Steel. The company, now led by its 15<sup>th</sup> generation, also carries a family principle that each generation should build one new business while staying grounded in "*intoku*," or quiet virtue through service to others.

Chairman Tatsuyoshi Yabashi described the company's role as serving society with integrity. "By refining our expertise while continuously building new businesses, we strive to create lasting value for our customers and communities," he said. "This is the essence of *intoku*—quietly contributing through our work, with a long-term perspective that prioritizes trust over short-term gain."

The mix of industrial discipline, continuity and social purpose is what keeps Japanese manufacturers standing through the years. For Yabashi, growth is tied not only to production but also to trust and contribution.

**"The true foundation of any production system lies in how effectively you cultivate people."**

**Hideki Igawa**,  
President,  
ICHII CO., Ltd.



What sets Japan apart in manufacturing is its processes and foundation. Ichii is taking the Japanese spirit of *monozukuri* and exporting it, leveraging digital transformation (DX) and AI. Hideki Igawa, president of Ichii, said that the first step is to ensure that the culture can be replicated overseas. "By embedding our environmental maintenance philosophy and human development principles in every location, we create overseas bases capable of producing talent with the same mindset as in Japan," he said.

To do that, the company is transforming its processes and leaning on emerging technologies to improve efficiency and accuracy. Its Indonesian factory is currently being redeveloped to incorporate a custom production management system and fully visualize and integrate the factory digitally. "Our goal is not simple workforce reduction," he said. "It is enabling fewer people to achieve greater productivity through AI-driven production management and improved processes."

**"I emphasize two things above all: customers first and people first."**

**Yoshiaki Matsuda**,  
President, Matsuda  
Sangyo Co., Ltd



## Doing More with Less

As an island with few natural resources, Japan has developed its manufacturing dominance in part because of its focus on *mottainai*. Long before the idea of a circular economy became a key busi-

ness value globally, Matsuda Sangyo has been converting discarded materials, such as food and precious metals, into usable resources.

"By not having to mine new resources, we have been contributing to environmental impact reduction for decades, even before the term 'carbon footprint' became common," said Yoshiaki Matsuda, president of Matsuda Sangyo. The company is looking to further improve its environmental footprint by advancing sorting techniques to reduce heat treatment. Matsuda believes that companies must first recognize that sustainability has a cost but benefits everyone.

Likewise, Nihon Sharyou Senjouki (JCW) Co., Ltd. also looks to reduce the water used in vehicle washing. The company has extensive experience across vehicle types, from personal vehicles to Japan's legendary Shinkansen, and looks to export those solutions worldwide. President Naohiro Masuda says that water scarcity is an important consideration, especially in developing markets.

**"We want to maintain high-quality output while finding the right price balance."**

**Naohiro Masuda**,  
President,  
Nihon Sharyou  
Senjouki (JCW)



"In economically developing regions such as India or parts of Africa, questions such as how much water to use, what kind of water to use, and how to manage washing resources become even more important," he said. The company has developed a system that recycles 100 percent of the water for use in the next cycle. "I believe this is a discussion we must continue to have, especially as climate change and global warming place increasing pressure on water access," he said.

As the world adapts to the new reality of manufacturing, Japanese companies are combining a centuries-old, proven philosophy with modern tools to create a new masterpiece. What is starting as a local sonata will swell into a global symphony that will define the fourth industrial revolution.



# JCW Uses AI to Redefine Rail Cleaning

JCW is leveraging technology to improve the efficiency and consistency of vehicle washing, aiming to set global frameworks and standards for cleanliness. *By Daniel de Bomford and Cian O'Neill*



Bus Washing Machine



Railway Bogie Washing System



Volunteer Activities in India

In the distance, the sheen of the spotlessly clean exterior flashes, heralding the approach of the speeding Shinkansen. As it rockets by, bringing a burst of wind and sound, the beauty of its form is highlighted by the fact that the Shinkansen is always sparkling, unsoiled by dirt, despite its demanding schedule.

Responsible for that shining exterior is Nihon Sharyou Senjouki (JCW). The company provides a range of vehicle washing solutions, from passenger cars to the mighty Shinkansen and soon, aircraft. As workforce numbers contract and demographic pressures mount, JCW is transforming the way it approaches cleaning through AI and automation to increase efficiency while maintaining its exacting standards.

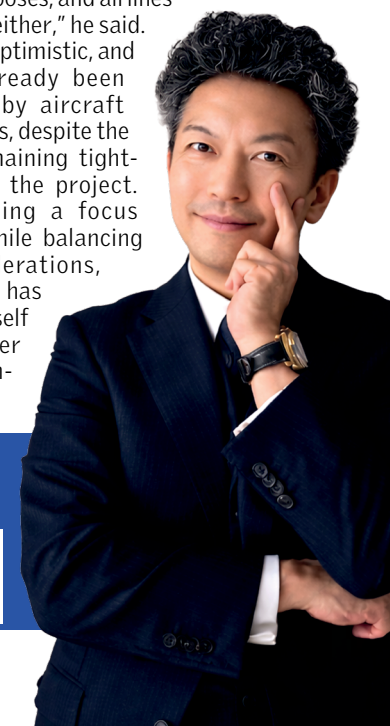
Naohiro Masuda, president of JCW, said that automating the traditionally manual processes for washing specific parts of the Shinkansen is a key priority. This labor-saving

technology is becoming increasingly important worldwide as countries continue to adopt high-speed rail. The company continues to receive a high volume of inquiries in India, especially with the development of the Mumbai-Ahmedabad high-speed rail corridor.

To achieve these efficiency gains, JCW is leaning on AI and automation. The challenge, Masuda explained, was that cleanliness standards are in the eye of the beholder. "We can use IoT, monitoring systems, predictive maintenance, and other digital tools to support operations, but the human eye still tends to judge dirt in subjective ways," Masuda said. The company is aiming to create a consistent, measurable standard and framework for cleanliness, leveraging AI-based approaches. "If a standard can first be established successfully in Japan, I believe it would become much easier for other countries to adopt it in forms that suit their own conditions," he said.

JCW is developing a new aircraft washing project in conjunction with two high-profile partners. However, aircraft are governed by stringent laws, regulations and operational requirements. "A washing equipment manufacturer cannot simply wash aircraft however it chooses, and airlines cannot do so either," he said.

Masuda is optimistic, and JCW has already been approached by aircraft manufacturers, despite the company remaining tight-lipped about the project. By maintaining a focus on quality while balancing price considerations, the company has established itself as the premier vehicle washing company.



"I want everyone connected to our company to feel proud of what we do, even people whose names we may not know personally."

Naohiro Masuda, President, JCW  
[www.ns-jcw.co.jp/en/index.php](http://www.ns-jcw.co.jp/en/index.php)



# Matsuda Sangyo Builds Value From Finite Resources

Founded on the belief that finite resources should never be wasted, Matsuda Sangyo has built a global business by recovering precious metals, securing food supplies and refining overlooked value into lasting strength. Its long-standing philosophy now speaks directly to the needs of a resource-conscious world.

By Daniel de Bomford, Bernard Thompson and Cian O'Neill



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Matsuda Sangyo Co., Ltd. was built with the instincts of a craftsman and the patience of a gardener: nothing valuable should be wasted, and what is carefully tended can yield strength for generations. Since 1935, the Japanese company has followed a simple idea: that finite resources must be used wisely and that business should create value not only through profit, but through contribution to society. Over the decades, that ethic has taken shape in two distinct but closely related fields, precious metals and food, where Matsuda Sangyo has repeatedly shown an ability to recover worth, restore usefulness and build resilience where others might see only limits.



Matsuda Sangyo's range of precious metal products

Today, Matsuda Sangyo is a substantial enterprise with a broad international reach. Its history of resource recovery began as early as 1948, when the company started supplying egg whites discarded from a local mayonnaise factory to kamaboko (fish paste) producers. This was followed by the company's establishment in its current form in 1951, when it refined silver recovered from printing processes, embodying

the spirit of *mottainai* and living without waste. The company is not a niche recycler operating on the margins of industry. It is a diversified group that has translated a long-held philosophy into a large-scale business serving modern manufacturing and food markets alike.

The company's structure is one reason it stands out. Matsuda Sangyo operates through two main business segments: precious metals and food. At first glance, the pairing may seem unusual. In practice, both businesses reflect the same operating mindset. One is built around recovering, refining and supplying valuable materials with high technical precision. The other is built around sourcing, quality assurance and stable distribution in a sector where trust and continuity are critical. Together, they give the company an identity broader than that of a conventional recycler or trading house.

## Precious Metals for Critical Components

Its precious-metals business remains the heart of the story.

"Personally, I emphasize two things above all: customers first and people first."

Yoshiaki Matsuda,  
President,  
Matsuda Sangyo Co., Ltd.



www.matsuda-sangyo.co.jp/en

Matsuda Sangyo has positioned this operation not simply as recycling, but as a full resource-circulation platform spanning recovery, refining, analysis, chemical products, processed products and closed-loop solutions. The company is going beyond handling waste at the end of a production cycle. It works across the value chain, helping customers recover precious metals from waste generated during the production processes of electronic device manufacturers and return them to industrial use in forms that meet exacting standards.



Illustrative representation of Matsuda Sangyo's food ingredients

This is especially important in sectors such as semiconductors and electronics, where purity is everything. President Yoshiaki Matsuda said the company has

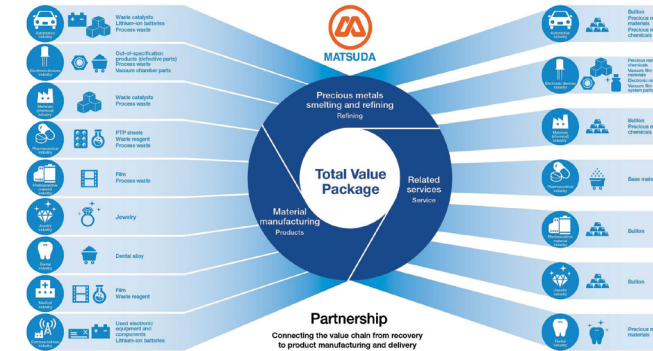


spent decades overcoming the assumption that recycled metals are inherently inferior to virgin materials. "Through decades of refining expertise, we have developed techniques that allow us to achieve purity levels equal to, and in some cases higher than, those obtained from newly mined ores," he said. This level of quality captures why Matsuda Sangyo occupies an important place in the circular economy. In advanced manufacturing, recycled input is only meaningful when it performs at the same level as newly mined material. According to Matsuda, that is precisely the hurdle the company has worked to clear.



Matsuda Sangyo's precious metal ingots

"Over nearly 30 years, we have built analytical and refining systems capable of detecting and removing impurities at far lower concentrations than those in virgin materials," he said. That gets to the technical core of Matsuda Sangyo's value proposition. Manufacturers have historically favored virgin material because recycled metals can come from multiple sources, creating concern about inconsistency. Matsuda argued that his company's long investment in analysis and impurity



Overview of the Precious Metals Business Segment

control has turned that perceived weakness into a strength. The result is that precious-metal products such as plating solutions and evaporation materials can be used in semiconductor and electronic-component applications that demand the highest levels of reliability.

rather than being discarded. That kind of industrial clustering is a key advantage because it turns waste from one process into input for another. This helps explain why Japanese recycling developed as an environmental necessity and a practical industrial system.

He is careful, however, not to romanticize the process. Recycling is not impact-free, and Matsuda acknowledged that environmental gains depend on how efficiently materials are separated and treated. "The better we become at separating materials in advance, the less we rely on high-temperature treatment later," he said. "By advancing these pre-processing technologies, we can continue to refine metals efficiently with minimal environmental burden."



## Decarbonization, Supply Chain Security and the Circular Economy

In that sense, Matsuda Sangyo's relevance extends beyond recycling itself. It sits at the intersection of several major industrial trends: decarbonization, circularity, supply security and the growing strategic importance of semiconductor materials. The company's own positioning reinforces that point. Its precious-metals business highlights recognized refining capabilities, closed-loop solutions and certified recycled gold products, all of which speak to a market increasingly focused on traceability and environmental performance as well as technical excellence.

President Matsuda also situated the company's strengths within a broader Japanese context. "Japan is, in many ways, one of the most efficient recycling nations in the world," he said, arguing that the country's industrial structure has played a major role in that outcome. With steelmaking, copper refining and cement production concentrated within compact regions, materials can move efficiently between industries



Named to the "CDP A List" for two consecutive years in the Climate Change questionnaire

The company's sustainability strategy is grounded in engineering discipline rather than an abstract aspiration. Better sorting, better preprocessing and better recovery reduce emissions and improve resource efficiency in practice.

The company has also built visible proof points around that message. Its ECO Series uses 100 percent recycled gold and

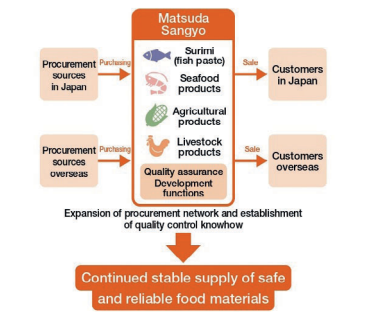
has received UL Japan certification, while Matsuda Sangyo has also set decarbonization targets and gained recognition for its climate efforts. This is evidence that the company's industrial story is backed by systems, standards and external validation rather than simple marketing badges.

## Closing the Food Loop

If the precious metals segment explains Matsuda Sangyo's technical identity, the food business reveals the continuity of its corporate DNA. President Matsuda recounted its origins in a story that feels almost too neat to be true, yet it explains the company perfectly. "Around that time, a neighboring company began producing mayonnaise, which used only egg yolks," he said, referring to the company's early years. "They were discarding the egg whites, which my grandfather obtained for free and then sold to kamaboko producers. Because the raw material was free, it became a profitable sideline — and that was the beginning of our food business." The same instinct that drives the recycling business, seeing overlooked materials not as waste but as opportunity, helped shape the food business too.

such moments, the company's international procurement network becomes a commercial advantage and a source of customer trust.

He also stressed the discipline behind that business. "We also have robust quality assurance and traceability systems," Matsuda said. "We have built systems that allow us to trace the root cause of any issue immediately back to the raw material stage." That ability is essential in modern food supply, particularly for frozen and prepared products with long and complex chains of custody. It also reinforces a broader point about the company: whether the product is a precious-metal material for electronics or a food ingredient for industrial users, Matsuda Sangyo competes by being dependable when quality and continuity matter most.



Overview of the Food Business Segment

There is a useful lesson in the coexistence of these two businesses. Matsuda Sangyo is not organized around a fashionable concept. It is organized around a discipline. In both metals and food, the company has built systems for recovery, sourcing, purification, verification and delivery. That is why the two segments feel coherent rather than accidental. Each is, in its own way, about making markets work better under conditions of scarcity and uncertainty.

In a world preoccupied with finite resources, cleaner production and supply resilience, Matsuda Sangyo's long evolution is a practical model. What began with silver recovery and surplus egg whites has become a modern business built on circulation, precision and trust. For an industrial company, that is a compelling way to stay useful in the decades ahead.

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DRIVING AMBITIOUS CORPORATE CLIMATE ACTION  
Emissions reduction targets approved by SBTi

What began as an opportunistic sideline has grown into a major operation with global reach. Today, Matsuda Sangyo's food division sources marine products, vegetables, meat and eggs while emphasizing quality assurance, traceability and stable supply. In an era of supply shocks, disease outbreaks and transport disruption, that capability has strategic value. As Matsuda said, "Our strength lies in our ability to secure alternative supplies from anywhere in the world." He pointed to situations such as avian-influenza-related egg shortages, when domestic production can take months or years to recover. In

# Building Value the Yabashi Way

**Yabashi Holdings blends centuries-old philosophy with modern industry, driving sustainable growth across Japan and beyond.** *By Bernard Thompson*



Yabashi Holdings Co., Ltd. is a Japanese manufacturer with core operations spanning lime, metals and timber. The company has established a fully integrated process for its lime business, from mine development and extraction to the production of

lime-based materials, earning the trust of major clients such as Nippon Steel. By managing the entire value chain, Yabashi has consistently supported Japan's industrial foundation.

At the heart of the company lies a distinctive philosophy passed down through generations of the Yabashi family. Guided by the principle that "each generation must create one new business," the company has continuously evolved, launching ventures aligned with the needs of each era. Now in its 15th generation of leadership, Yabashi continues to balance the deepening of its core businesses with a commitment to new initiatives.

At the same time, another family precept cautions against relying solely on business or wealth. The most important value is *intoku*—the quiet accumulation of virtue. This belief emphasizes contributing to oth-

ers without seeking recognition, grounded in the idea that true sustainability comes not from financial assets alone, but from the goodwill and trust built through meaningful actions. In this sense, profitability is not an end in itself, but a measure of how effectively a business creates value for society.

This philosophy extends beyond Japan. Over 20 years ago, Yabashi began expanding overseas, seeking opportunities to contribute in international markets. Even in a global context, the company maintains its focus on creating value that benefits local communities, rather than pursuing growth for its own sake.

By combining manufacturing expertise with a deeply rooted, multigenerational ethos, Yabashi continues to pursue sustainable growth. Its approach is defined not only by what it produces, but by the belief in building value over time.



"True value comes from serving society with integrity, purpose and long-term vision."

Tatsuyoshi Yabashi,  
Chairman,  
Yabashi Holdings Co., Ltd.



Lime Business



Metal Business



Timber Business



CAD Business (in Vietnam)



# Ichii Drives AI in Manufacturing

**As emerging technologies transform manufacturing, Ichii is building internal digital tools and aims to become an enabler.** *By Daniel de Bomford*



As digital transformation upends traditional manufacturing and demographic shifts reduce the workforce, organizations must adapt or be left behind in this new reality.

To combat these pressures, automotive parts manufacturer Ichii Co., Ltd. is paving a new path to productivity, a human-centered approach to DX that's already seeing results. Rather than limiting digitalization to design and drafting, the company is going all in on AI across its integrated design-to-production processes to improve efficiency, reduce defects and increase safety.

President Hideki Igawa said the com-

pany's Indonesian factory is developing a custom AI-driven production management system. "Our goal is to create a fully visualized factory where operations, skill levels, and production conditions are integrated digitally," he said.

The goal, Igawa said, wasn't to reduce the headcount. Rather, it is to improve per-employee efficiency. These efforts are already paying off. Despite a reduction in headcount, productivity has risen alongside gross profit.

For example, innovations such as facial recognition and authentication can ensure that only qualified individuals operate machinery. In manufacturing, precision and stability are vital; generative AI is being leveraged to reinforce standards and eliminate human



"In manufacturing, stability and precision are as important as innovation."

Hideki Igawa, President, Ichii Co., Ltd.

ambiguity. "We see its power in operational discipline and system control," Igawa said.

ICHII acquired an AI firm to move development in-house to speed up the process and better shape the system for manufacturers. But the company aims to go beyond manufacturing and become an enabler of DX for SMEs, commercializing the system it has built.

The company continues to capitalize on emerging opportunities with its forward-looking approach. As Igawa put it, "By integrating AI-based systems and disciplined human development, we can provide both high-quality production and technological innovation."



**ICHII Co.,Ltd.**

www.ichii-ind.com



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