

Monozukuri gives Japan its competitive edge

Made world famous by Toyota, *monozukuri* is a concept found at the core of all Japanese manufacturers, from those making cars to those making cardboard boxes. While *monozukuri* focuses on high-quality, perfection, and fine attention to detail, it also entails the constant pursuit of innovation guided by a response to customer, industrial and societal needs.

"After WWII, the Japanese economy grew exponentially and Japanese firms focused on developing their *monozukuri*, which consequently enhanced Japan's industrial sector as a whole," explains Akiyoshi Kitamura, president of PACRAFT, a renowned manufacturer of filling and packaging machinery. "Japanese manufacturers during that period really challenged themselves. One aspect of the Japanese population that drove this sector to what it is today was the high demand of consumers and the *monozukuri* craftsmanship required to fulfil these demands."

For Takao Morizane, president of Misumaru Sangyo – a leader in industrial packaging that is also behind Woodtique, an ultra-thin real wood

vener for walls, ceilings and other surfaces – *monozukuri* is "the accumulation of improvements in quality, usage and use in the right direction, from the user's point of view".

"As the owner of this business, I believe that we should continue to innovate our products and our business without interruption," he adds. "While we continue to increase the value of our improvements for the domestic market, there are not enough improvements for the global market. We have to keep on innovating this company and we have to take on new technologies. One example of this is our Woodtique."

Indeed, for those in the packaging industry nowadays, customer demands and societal needs are very much focused on sustainability and environmental concerns, which has guided innovation and product development at cardboard manufacturer TOMOKU, a company developing packaging technology aimed at reducing waste in the fast-growing online shopping industry.

"One key point is how we bring ourselves to the end user and how

we can fit their needs. Most shopping is done online, and so we are thinking about making some proposals to fit user needs," explains company president, Mitsuo Nakahashi. "Often when online shopping, you receive a huge box, but the contents of it are small, and that's just a waste of paper. Thus, we are thinking of solutions to this problem, like using the optimal amount and suitable shape of packaging for each delivery. Given the high recycle rate of cardboard in Japan, it can be recycled even if the paper fibers become shorter and thinner. This technology will bring high-cost effectiveness and is environmentally friendly, and it will become an alternative to many other kinds of containers. We have a 95% recycle rate for our cardboard."

Innovation is also at the core of Nippon Closures, a leading manufacturer of plastic and metal closures for food, beverage, medical, home and chemical products. "We have always believed the essence of *monozukuri* is meeting customer needs, no matter what," says president Hisashi Nakajima. Mr. Nakajima is acutely

aware of his company's responsibilities when it comes to sustainability as a company engaged in plastic manufacturing. "Personally, my goal is to ensure that the continued use of plastics does not destroy the planet and to achieve a circular economy for plastic closures."

Monozukuri can be traced back centuries to the samurai sword making city of Seki, the birthplace of Kai Corporation, a manufacturer of blades and related products in the cooking, beauty, grooming, and medical fields that continues to introduce cutting-edge innovation. "Craftspeople try to pay attention to clients' every request, and they manufacture things according to the *monozukuri* philosophy, which is based on creating the option most tailored to customers' needs. We want to carry this tradition on," says Kai president, Hiroaki Endo. "Even when we are expanding overseas, we try to stay true to the essence of Japan and Japanese culture. We also try to take care of the needs of local people in the countries we are in; that is the core of wanting to preserve the *monozukuri* process."

Thinking outside the box to provide high-quality recyclable packaging

As e-commerce rises and more sustainable packaging is required, TOMOKU has innovated its manufacturing process and expanded overseas to meet growing global demand.



"Whenever we decide to set up new factories, we try to step up our unique processes so we can assure our productivity and quality. This helps us keep our competitive edge."

Mitsuo Nakahashi,
President & COO,
Tomoku Co., Ltd.



View of Vietnam factory

With its unique business strategy across three distinct business segments – cardboard manufacturing, housebuilding, and logistics – TOMOKU is a company with diverse operations and interests. Thinking outside of the box, therefore, comes naturally to the organization, particularly when you consider one of its main product lines is the humble box itself; a product which has engendered a surprising amount of innovation over the years.

"The cardboard box is a product that, when looking at it, you can't really tell in which country in the world it has been made, or which

company makes it," says Mitsuo Nakahashi, President of TOMOKU. "Yet at TOMOKU we are really sophisticated with our manufacturing process that we have designed. It is unique to us, and we are now bringing the ideas that we have developed in Japan to other parts of the world where we can manufacture at a reasonable cost, as well as with excellent quality."



A house designed by Sweden House

With more than 70 years manufacturing in Japan, the company has expanded its production capacity in Vietnam – where it established three new product lines



TM450 installed in SBC, which went into operation in September

in 2021 – as well as the United States, introducing its unique production technology cultivated domestically to global markets. This includes the TM450, a high-speed corrugator which can produce corrugated sheets at 450m per minute. "We've already been looking into the future, including trying to automate while increasing productivity and product quality," says Mr. Nakahashi. "As a result, whenever we decide to set up new factories, we try to step up our unique processes so we can assure our productivity and quality. This helps us keep our competitive edge and the reason why we set up all the offices and channels globally."

 **TOMOKU**
www.tomoku.co.jp/english/

Nippon Closures proves there is no cap on innovation

The packaging manufacturer which specializes in closures and caps for products across the food and beverage industries is collaborating with overseas partners to enhance innovation and break into new global markets.



"In order to produce a product that we are satisfied with, we keep improving it."

Hisashi Nakajima,
President,
Nippon Closures Co., Ltd.

When you think of a product on the shelf of any super store, the first thing you often imagine is not about the product itself – or its core contents – but how that product looks and presents itself from the outside: its packaging. Indeed, packaging is integral to a product's brand and how the product appeals to diverse consumer tastes through the character, personality and functionality that it provides. As it turns out, with a culture that places the highest value on beauty, quality, and function in the manufacturing process through a long tradition for *monozukuri* (fine craftsmanship), the Japanese are unsurprisingly masters of packaging solutions.

"The Japanese are always aware of their ideal world and strive for perfection in beauty and function, without ever being satisfied with the status quo," says Hisashi Nakajima, President of Nippon Closures, which develops, manufactures, and sells plastic and metal closures and caps for products across the food, beverage, medical, sanitary, and chemical industries. "In order to produce a product that we are satisfied with, we keep improving it. We believe that is one of the reasons Japanese brands have such a good reputation, because



they strive for better functions and constantly develop their technology to have an ideal product."

The famous Japanese manufacturing philosophy *monozukuri* has traditionally been about craftsmanship quality, fine attention to detail, and the *kaizen* philosophy. Nowadays, it is also about responding to market demands and customer requests, as well as providing the solutions that customers require, explains Mr. Nakajima.

"We have always believed that the essence of *monozukuri* is to meet the needs of the customer, no matter what. In essence, we never turn down a demand or request from a customer in need," he says. "We communicate carefully with our customers to find out what problems they are really facing. We make it a point to first understand the customer well and then consider how we can help this person in need when developing our products. To achieve this, we always try to be creative, innovative and pursue the most advanced technology. This is something that has remained unchanged since the inception of our company and we are proud to say that our attitude towards ideal manufacturing has resulted in the trust our customers have placed in us over the years."

Central to this philosophy is the aspect of collaboration with other like-minded companies in

order to enhance innovative capabilities and produce optimum solutions. This is particularly so when it comes to co-creation amongst international partners who can share knowledge, technology, and research that enables the respective parties to break into new overseas markets. In 2019, Nippon Closures signed a cross-licensing agreement with the American packaging firm Aptar for the design, development, and manufacture of tethered caps, for instance.

"With regards to co-creation and collaboration with overseas companies, our goal is not necessarily to provide caps at a lower price, nor is it to pursue cost reduction or profitability," explains the Nippon Closures president. "Rather, we are thinking about how we can take advantage of our existing technologies and match them well with overseas partners and overseas closure manufacturers to provide highly specialized caps that meet the needs of each market. An existing technology may open a market in some other country. Or if it can help solve social issues in that country, that will be the greatest motivation for our engineers and staff members, which will also lead to their growth. What we pursue is not only profit but also how much value we can provide to society."

An example of this is how Nippon Closures has adapted its products to cater to changing Japanese society, which today has the oldest population in the world with the longest average life expectancy at 84, and more than 33% of the population soon expected to be over the age of 65.

"Since our establishment, we have been seeking ways to reduce the amount of force required to open a cap," says Mr. Nakajima. "For example, the twist-off caps used for jams and other products, introduced from a foreign cap manufacturer, initially required a strong force to open. As a result of various improvements, we've succeeded in making a cap that is easy for anyone to open."

In 2017, the company organized an "idea marathon" in Singapore to develop a set of caps and bottles that are easy to open for everyone including the elderly and disabled. "Through this project to develop a product by directly exchanging opinions with consumers and major beverage brands, we realized once again the importance of open innovation through diversity, which led to the opening of the FUTURE DESIGN LAB as a base for development and marketing in Singapore by Toyo Seikan Group Holdings."

As a business with a firm focus on such Corporate Social Responsibility (CSR), another goal of Nippon Closures is to overcome the problem of plastics, says the company president.

"Personally, I have a great dream and goal to ensure that the continued use of plastics does not destroy the planet and to achieve a circular economy for plastic closures. As a business, we would like to contribute greatly to the happiness of the people living in any region, and not just pursue profit. To this end, CSR and social contribution are one of the main goals of our growth strategy that we are currently formulating."

 **Nippon Closures Co., Ltd.**
www.ncc-caps.co.jp/

Woodtique: The wooden wallpaper that provides a safe and comfortable living space whilst also preserving the environment

Misumaru, a manufacturer of industrial packaging materials, is celebrating its 50th anniversary this year with a new business venture, Woodtique, a wallpaper and sheeting product that makes it easy to enjoy the look and feel of natural wood.



"The structure of this product may look simple, but it is the fruit of the Japanese spirit of *monozukuri*."

Takao Morizane, CEO,
Misumaru Sangyo Co., Ltd.

"When I saw this product in the newspaper, I knew I had to try it. I immediately made an appointment with the manufacturer," recalls Mr. Takao Morizane, CEO of the Misumaru Group, upon first seeing Woodtique. Mr. Morizane decided to visit the manufacturer of Woodtique, which is now part of the group, and was so taken with the product that he agreed to become its sole worldwide distributor the same day.

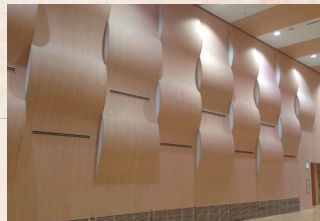
The product consists of very thinly sliced wood boards attached to a specially manufactured, non-combustible paper substrate. The structure of this product may look simple, but it is the fruit of the Japanese spirit of *monozukuri*, which involves a wide range of exclusive techniques such as surface polishing, color adjustment and the method of attaching the product to the substrate.

This product is a condensed form of the techniques that the Japanese people have been using since ancient times in order to conserve wood. In Japan, wood from thinning has been used for centuries to make chopsticks, boxes, etc., using every last bit

of wood. In other words, it is a technique that has been refined in the pursuit of profit, in order to produce more products from less wood. Woodtique, however, is a reversal of this idea, using as



Natural warm wood feelings



The Woodtique difference

little wood as possible to make as much Woodtique as possible, and protecting the environment.

Woodtique wallpaper can be applied in exactly the same way as any other wallpaper surface and can just as easily be pasted as any other wallpaper. Because it is so easily applied both amateur and professional decorators alike can handle it allowing for a smooth installation and overall cost reduction – moreover, its compact size means it requires only minimal storage space. "The total thickness of the panels is about 200-280 microns, which makes them very flexible and allows them to be bent along the grain of the wood, something that cannot be achieved with normal wooden panels," Mr. Morizane states. Thanks to this characteristic, Woodtique can be ap-

plied to curved surfaces and even sharp corners.

Another way of using Woodtique is to combine it with other materials to create new types of decor. For example, Woodtique



A unique wallcovering



Modern and trendsetting

sheets can be attached to aluminium squares to make them lighter, stronger and more durable than the original squares.

When Woodtique is applied to a plasterboard wall substrate, or to an aluminium square, it uses less wood than a normal wooden board or square, but it is also more durable and has a lower total cost. In addition to the obvious benefits of using less wood, this also increases durability and lowers the decorative expense. Even more surprisingly, Woodtique sheets are ultra-thin and can be sewn. The company is currently developing products such as wallets using Woodtique sheets to take advantage of this feature.

A recent trend in Japan has been the use of Woodtique sheets in origami and lighting materials, as the company's proprietary technology can reduce the total thickness of wood sheets to around 100 microns. At this level of thinness, the wood can be folded in any direction without causing any cracks, making it as easy to fold origami cranes as any other type of origami, and, because it transmits light, it can be used as a lighting material to create a unique atmosphere where the grain of the wood and the light combine.

"Woodtique is a new material that will allow us to make the most efficient use of wood as we build a low-carbon society," Mr. Morizane confidently declares. In addition to Woodtique, the company has introduced a digital printing machine, which is still a rarity in the industry, and is setting up an on-demand production system for small-lot photo printing. The company is determined to reduce its impact on the environment by producing only what customers really need, in the quantities they really need, a system that has been difficult for manufacturers to establish until now. This will be combined with the company's proprietary check valve technology to produce attractive products such as compression bags for clothes.

Finally, the company fully intends to fulfil its social responsibility as a leader in the industry by using recycled raw materials wherever possible to reduce its environmental impact.



Giftmate
drawstring bags



MISUMARU

www.misumaru.co.jp

The cutting-edge blade makers forging a sustainable future

A company with a growing international reach, Kai Corporation is adapting to new needs without losing sight of the blade-forging traditions it is rooted in.

Founded in 1908 in Seki, Kai Corporation is a leading Japanese manufacturer of blades and related products in the cooking, beauty, grooming, and medical fields. The company boasts a significant – and growing – international presence.

Known as the 'city of swordsmiths', Seki boasts a history stretching back over eight centuries as the home of forging blades in Japan. It is, in the words of Kai president Hiroaki Endo (the great-grandson of the firm's founder, Saijiro Endo) "one of the three most important centers for swordsmanship in the world, together with Solingen in Germany and Sheffield in the United Kingdom".

Kai embraces its rich local heritage, highlighting in its mission statement a devotion to "passing down the skill and spirit which continue to flow in this land". It's a commitment that goes hand in hand with the company's dedication to *monozukuri* – the drive for perfection that underpins Japanese manufacturing. "Craftspeople try to pay attention to clients' every request, and they manufacture things according to the *monozukuri* philosophy, which is based on creating the option most tailored to customers' needs," Mr. Endo says. "We want to carry this tradition on."

Having started out by crafting pocketknives, Kai began making

er razors to be the DNA of the company, because the founding generations – the first, second and third – focused on setting new milestones in developing this product. My generation, the fourth, obviously wants to take on new challenges when it comes to this key product. That's why, in



Michel BRAS kitchen knives

the context of the push for more sustainable business models, I decided to test the Paper Razor."

Featuring a handle made of water-resistant card stock, Kai's groundbreaking Paper Razor uses 98% less plastic than before; its metal head and blade are its only non-paper elements. "Currently, it's being trialed in Japan only, but there has already been a lot of interest from other countries, because people are more conscientious of environmental issues," Mr. Endo says. "The next five to seven years is really the key period for us to become a sustainable manufacturer. Starting with the Paper Razor, we look forward to expanding the spectrum of services, business and products in this area."

In the mid-20th century, Mr. Endo's grandfather, Saijiro Endo II, added other cutting tools to Kai's portfolio, such as kitchen knives, scissors and nail clippers, with the company today boasting an extensive range of products for cooking, beauty care and groom-

ing. "Beauty and grooming – razors and nail clippers in particular – and kitchenware – with knives, peelers and scissors at the forefront – are our core business-to-consumer sectors," Mr. Endo says.

While Kai initially focused on selling kitchen knives in Japan, a turn-of-the-millennium boom



Shun kitchen knives



Paper Razor™

in western interest in the country's culture and cuisine led the company to introduce its successful Shun brand of culinary blades for the overseas market. "People wanted the right tools to prepare Japanese food, or *wash-oku*, which was considered cool and healthy," Mr. Endo explains. "Up to that point, the German city of Solingen dominated the cutlery market outside of Japan. However, after we launched the Shun brand, we became a strong international competitor."

Kai is now also a manufacturer of medical blades, and in 2018 expanded its domestic medical blade factory in Oyana, as part of its efforts to expand its output in the field of surgical instruments. "When it comes to the medical sector, there are good prospects in terms of the potential for profit and the high level of technology required in manufacturing," Mr. Endo says. "That's why we decided to put emphasis on the medical field when expanding our factory."

Having so far expanded to the US, Germany, China, Hong



"We're expanding our reach globally while staying true to Japan's essence."

Hiroaki Endo,
President & COO,
Kai Corporation

Kong, Vietnam, South Korea, India and France, Kai continues to grow internationally. However, although Mr. Endo sees greater potential in its overseas business, he stresses that the



Kershaw knife

firm will never lose sight of its roots. "Looking to Japan, as you know, its population is aging, so we obviously aren't expecting an explosive market with good growth in the future," he says. "But while we are expanding our reach outside Japan, I want to make sure we never forget our pride as a 100-year-old Japanese company."



Medical equipment factory

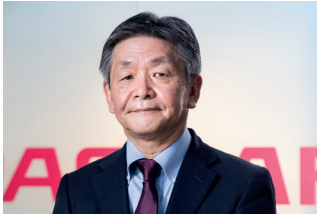
Japan's first replaceable razor blade in 1932, and later became the first company in the world to create a disposable razor with three blades. "This was a huge milestone for our company, allowing it to become well-known and increase our global presence," Mr. Endo says. "I consid-



kai-group.com/global/en/

PACRAFT'S rebrand pointing to a more sustainable future

To mark its 61st anniversary, PACRAFT has undergone a noteworthy rebrand. Formerly Toyo Jidoki, PACRAFT wanted to integrate a new image which reflected a mindset and culture for future growth both inside and outside the company.



"Moving forward, we see a trend of reduced plastic product use worldwide and using materials that are more easily recyclable."

Akiyoshi Kitamura,
President,
PACRAFT Co., Ltd.

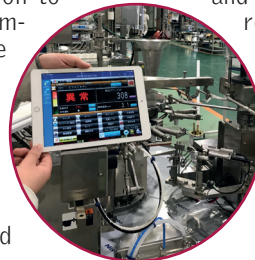
Since its inception in 1960, PACRAFT has strived to apply advanced technologies to build pouch fill/sealing machines and automated systems to meet the diverse needs of its customers, all while never losing sight of one of its core philosophies: once a client, always a client.



Pouch packaging

PACRAFT's customers have become familiarized with looking to the company to solve their problems and produce creative solutions. PACRAFT's unmatched attention to detail assures customers that its durable and high-performing equipment can be used for the maximum length of time.

One increasingly more desired need expressed by PACRAFT's range of customers is IoT compatibility. PACRAFT is therefore always happy to deliver. The company



Automation controls

adds IoT systems to manage data, to keep consistent production and engineer service history on customer IoT systems as well as connectivity between the machines and the factory, so that data from all equipment can be compiled and that the site is fully connected.

PACRAFT is also fully fixated on a sustainable future for everyone. The company boasts pouch refills that are energy efficient and use a fraction of the resources required by rigid containers. PACRAFT's product portfolio and current R+D reflect one of its most important focuses: sustainability for the environment. Rebranding the company has become a preface for what lies ahead for this forward-thinking and ambitious company. With

a target to be the best-known supplier of pouch packaging equipment worldwide, PACRAFT incorporates important technological advances with an emphasis on sustainability while



Pack Expo

always following the company's core mantra: the sale of a product marks the start of a long relationship with the customer.

PACRAFT
PACKAGING FOR YOU
<https://pacraft-global.com/en>

Innovation to put smiles on faces



Tufting machine

Behind every great smile is a great toothbrush, and people from all walks of life are focusing on their dental hygiene more than ever. Yamato Esulon offers its partners the opportunity to sell the most innovative dental products with the assurances and know-how that 90 years of experience in the business brings.

As an OEM, the company prides itself on its ability to tailor its industry-standard machinery to meet the needs of its business partners, working to strict deadlines, and preventing

leaks of company information. As President Toshiharu Matsushita says: "Our ability to deliver on our promises is what builds trust with our customers."

This trust has enabled Yamato Esulon to produce tooth-

customers across the globe. Indeed, Yamato Esulon has expanded its production to a factory in Thailand, where its Japanese employees work with the local team to ensure its high standards are main-



brushes for electronic giants such as Panasonic, and the company is proud of its history of renewed orders from

tained whilst adapting to the local market.

As a small producer, the company understands its ability to



orco (PCR test device)

innovate is key to its growth, and this is best illustrated by its expansion into the development of a PCR test for gingivitis. Six years of development with a specialist manufacturer has enabled Yamato Esulon to create a product which allows dentists themselves to analyze their patients' oral health in 45 minutes, rather than sending the samples to specialist laboratories and waiting for results.

Continuing this diversification, the company is developing its unique tufting head part for toothbrushes, making the head extremely streamlined, which it plans to launch as its own product rather than as an OEM.

www.yamato-esulon.co.jp/english