

Monozukuri gives Japan its competitive edge

In English, the Japanese word '*monozukuri*' can be translated as 'making things'. And it's fair to say Japan has excelled at making things since the postwar boom that turned the country into one of the world's industrial powerhouses. But *monozukuri* means so much more than its humble English translation. It is a manufacturing philosophy concerned with high-quality craftsmanship, innovation and meeting ever-changing demands – a philosophy on which the 'Made in Japan' brand has built its global reputation over the past few decades.

"The essence of *monozukuri* lies in the harmony of technology and in the Japanese people, who are very diligent and pay a lot of attention to detail," explains Chiharu Kishi, chairman of Senba Denki Kazai, a manufacturer and trader of electrical components. "Japanese products are renowned across the globe for their good quality and reliability, and this harmony has allowed Japanese companies to develop and become world leaders with the added value created by advanced technology."

A leading manufacturer of high-performing switches, NKK Switches takes the *monozukuri* concept one step further, with what president Tomoshige Ohashi calls *hitozukuri*. "Our time-tested formulae, technical know-how and quality results in *monozukuri* are well established, but it is important to go beyond that," he explains. "We have embraced the principles of *hitozukuri*, rather than *monozukuri*, which is quality born from people's hands. This philosophy has run throughout NKK Switches' entire history. Since the beginning, we have adopted three guiding principles: improving quality, ensuring safety and reliability, and creating functional switches."

In recent decades, Japanese companies have faced increasingly stronger competition from China and other regional competitors. But the Nippon nation continues to distinguish itself through *monozukuri*, and particularly through the manufacturing of high-quality and tailor-made solutions in niche areas.

"Chinese companies surpass Japanese firms in terms of the

volume of production, as they pay attention to quantity over quality. In order for our company not to lose out to the competition, we are attempting to go with our niche technology to areas that China or other East Asian countries have not tackled," says Satoshi Watanabe, president of work glove maker Towa, whose niche technologies include its MicroFinish coating for improved grip and innovative RO-BOGlove series of anti-slip covers for industrial robots.

Hiroshi Kubo, president and CEO of Yamabiko, a reputed manufacturer of high-performing outdoor power equipment through its ECHO and Shindaiwa brands, describes how *monozukuri* encompasses the company's entire manufacturing cycle. "Our strength and uniqueness rely on the fact that we are completely vertically integrated. Our *monozukuri* is present in our materials and our processes and internally we create the whole process ourselves," he says. "It is present from the engineering group to the integrated production sys-

tems, covering our materials to the finished goods we provide. We have a material research center as well as key metallurgy expertise, allowing us to blend custom materials into our products. We also maintain very strict tolerances in our designs and manufacturing processes, resulting in the high-quality products for which ECHO is known."

Monozukuri focuses very much on acutely responding to customer needs, with household appliance maker Iris Ohyama adopting what it calls the "user-in" concept in its product development. "Iris Ohyama is based on the philosophy of the 'user-in' concept, which focuses on the perspective of the consumers and forms the basis of our products and marketing," explains president Akihiro Ohyama. Having developed an AI-powered DX cleaning robot in collaboration with Softbank, Iris Ohyama is now seeking international partners as it looks to develop more cutting-edge products and take its *monozukuri* quality to a larger base of global customers.

NKK Switches: Japan's switch specialist

A company boasting 70 years of experience and an ever-expanding international presence, the Kawasaki-based switch manufacturer goes the extra mile to ensure its products are of the highest quality.



Train door switch

Established in 1951, NKK Switches is a leading Japanese switch maker whose guiding principles are "improving quality, ensuring safety and reliability, and creating functional switches," says the company's president, Tomoshige Ohashi.

Key to NKK's commitment to quality is the rigorous testing its products undergo. "Most companies meet the minimum criteria required to pass tests, but

we go beyond that, conducting extra tests from all angles," Mr. Ohashi explains.

NKK creates conventional switches, including pushbutton, toggle and rocker switches, as well as cutting-edge, multi-functional switches with OLED and LCD displays. "Because of our flexibility and strengths, such as our reliability, customers

know NKK can create complex and sophisticated switches," Mr. Ohashi says.

However, conventional switches remain NKK's chief product for now, he adds. "We shouldn't forget about emerging countries, where demand for them is huge.



"It's very important to remain aligned with customers and hear their thoughts and opinions on our products, and how they're utilizing them."

Tomoshige Ohashi,
President,
NKK Switches Co., Ltd.

And companies that are slow in adopting new technologies still request these products.

There's still a market for them, and we're strong in it."

NKK's expanding global reach has seen international sales rocket from 10% of its overall revenue in 2003, to 50% today. "We're constantly introducing our switches to new markets," Mr. Ohashi says. "Our current target is for overseas sales to reach 70% of our total revenue."



Toggle



OLED switch



Pushbutton

Looking to the future, NKK's goal is to work ever more closely with its clients. "We're trying to shift our philosophy from just product manufacturing to becoming a solutions provider," Mr. Ohashi says. "It's very important to remain aligned with customers and hear their thoughts and opinions on our products, and how they're utilizing them."

NKK
SWITCHES
www.nkkswitches.co.jp/

Yamabiko: Powering its way to global expansion



"Our corporate philosophy is to 'create the bridge that bonds people and nature with the future'. Through the development of our business, we aim to be a company that creates a beautiful future for the global environment."

Hiroshi Kubo,
President and CEO,
YAMABIKO CORP.

Japan is famous worldwide for its ancient culture of *monozukuri*, and the *kaizen* philosophy of constant improvement. To this day, business giants like Yamabiko Corporation – a leader in the outdoor power equipment, agricultural machinery, and industrial machinery sectors – depend on these long-held philosophies to guide business strategies.

"Our *monozukuri* is present in our materials and our processes and internally we create the whole process ourselves," explains Hiro-

ECHO INC., owned by Yamabiko Corporation, has been a leader in the outdoor power equipment industry for 50 years and continues to expand domestically and overseas.



ECHO backpack blower

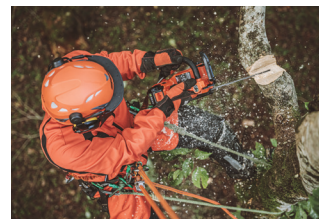
shi Kubo, Representative Director, President and CEO of Yamabiko Corporation, the group behind the ECHO and Shindaiwa brands. "It is present in the engineering group to the integrated production systems, covering our materials to the finished goods we provide."

Hand-held outdoor power equipment is the largest segment of the organization, with a core competence in engine technology that is critical to maintaining its unique vertically integrated solutions. "Being vertically integrated allows us to create our own tools, which is a highly sophisticated process that requires thorough analysis for consideration of the shape or atmosphere. We have deep knowledge and experience regarding aerodynamics and the materials utilized, making it a very sophisticated process," says Mr. Kubo.

This expertise in outdoor equipment is also key to helping the organization lead in the transition to the electrification of other sectors such as the agricultural machin-

ery sector – a transition driven by the need for more environmental sustainability.

"The transition to electric, whether it be zero emission or hybrid, is not only for outdoor power equipment (OPE), but also for the agricultural sector and industrial machinery as well," explains Mr. Kubo. "Two-cycle engine development and manufacturing has historically been at the heart of our company and our products. However, we have been investing in other power sources to keep pace with the changes in the global market. While there is an energy transition away from fossil fuels, there are still customer requirements for very demanding applications. It is for this reason, the needs of our customers, that we are increasing our investment



ECHO battery top handle chainsaw

in both battery and engine development, to provide all relevant solutions demanded from our market. Part of that investment is the recent introduction of a new

line of battery-powered, hand-held outdoor power equipment in North America."



Tim Dorsey, President and CEO,
ECHO INC., Yamabiko's subsidiary
located in Chicago, IL, U.S.A.

Moving forward, Yamabiko Corporation will continue to expand its overseas business in the Asia, Europe, and North American markets, with North America being the most promising and having provided the biggest growth historically.

"It is the most promising market for our future," says Mr. Kubo. "We want to expand our business to not only provide products, but also to be a service provider for all sectors. We have been making our way through these unprecedented times, and we all maintain an eye toward the future through key strategic moves today. As our founder used to say: 'when there's uncertainty, we must think thoroughly about how to adapt to the changes of society.'"

ECHO
eFORCE™
56V BATTERY SYSTEM

ONE PLATFORM. ALL ECHO.
MAKING INTELLIGENT POWER & TRUSTED PERFORMANCE SIMPLE.™

The advertisement features a collection of ECHO eFORCE 56V battery-powered tools, including a backpack blower, a top handle chainsaw, a trimmer, and a lawnmower, all displayed against a dark background with a stylized yellow ECHO logo.

Customers as the driving force of innovation

Japan's Iris Ohyama has established itself as a market leader in innovative home appliances, homeware products, and quality business solutions defined by the "user-in" concept.



"The perspective of the consumers forms the basis of our products and marketing."

Akihiro Ohyama,
President,
IRIS OHYAMA Inc.

A standard approach to R&D sees developers asked to seek out consumers' needs and dissatisfactions. However, at Iris Ohyama, the company's developers act as the "voice of the

consumer" in developing products that can resolve consumer dissatisfaction while they are using the products.

Founded in 1971 as a planning, manufacturing, and sales company focused on household goods, Iris Ohyama uses this innovative "user-in" concept to develop a wide range of products, from AI-powered robotic cleaners to food products such as packaged rice, with the goal of making consumers' lives more prosperous.

In 2021, Iris Ohyama established Iris Robotics in collaboration with SoftBank Robotics to develop an AI-powered DX cleaning robot, Whiz i Iris Edition, which can be also used as a promotional tool with digital signage among other options. And in line with its commitment to meeting consumer demand, the coronavirus pandemic prompted the company to launch an AI



Serving and transporting robot "Servi Iris Edition"

thermal camera for non-contact temperature measurement.

Iris Ohyama's two main pillars are its B2C and B2B units. Its B2C operation focuses mainly on home appliances and household products, whilst its B2B wing offers LED lighting, interior solutions, robotic solutions and more. The company's strong portfolio has enabled it to expand into the Chinese and Southeast Asian markets, having established group companies in Vietnam, Thailand, China, Korea and Taiwan. The company's expansion means it is always looking for high-technol-



Clear storage case

ogy companies to partner with. "We want to take our ideas all over the world and make everybody's lives more prosperous," says president, Akihiro Ohyama.



IRIS OHYAMA

www.irisohyama.co.jp



Circulator eye

Marugo: The split-toe shoe specialists

"Make it new" is Marugo's message, and the Japanese firm has taken resolute steps in its mission to demonstrate to the world the value of freeing the big toe in our footwear.



Marugo Tokyo

Marugo Company Inc., established in Kurashiki, Okayama Prefecture, in 1919, has a long history of producing *Jikatabi*, a combination of Tabi – a traditional Japanese split-toe sock – together with a modern rubber sole to provide freedom of movement as well as dependable underfoot grip, just like when you are barefooted. In addition to its main product, another interesting combination for the company is its name, a result of the joining of two Japanese words: circle (Maru) and five (go) – a fitting homage to the five rings of the Olympic games,

where, in its early years, Japanese marathon runners would wear split-toe, *Jikatabi* shoes.

Jikatabi was long loved by workers in industries such as agriculture, forestry, construction and mining, which is to say that *Jikatabi* has played an important supporting role during the industrial modernization of Japan. In recent decades, in addition to *Jikatabi*, the firm has pioneered a new market of "protective sneakers" as a PPE item which superseded conventional black heavy safety shoes in Japan. The firm proudly produces high-quality split-toe footwear in its state-of-the-art factory in Japan, at the same time, its protective sneakers are also manufactured in its associated factories overseas.



PPE shoes

In accordance with the Olympic spirit within the firm, Marugo is looking outwards across all the continents. Chairperson Shigehiko

Fujiki describes the approach for its PPE shoes: "We would like to collaborate with trading houses who have direct connections to customers or e-trading platforms." As such, the company's idea is to manufacture and deliver locally with its design and brand names to get closer to the actual customers.



Tabi shoes

The Japanese are renowned for living long lives, with their longevity intrinsically linked to diet and a healthy lifestyle. As such, Marugo's main goal is to provide people with split-toe shoes that boast many unique characteristics, such as big toe independence, unmatched flexibility, and breathability, in accordance with



"We are proud that our tradition has succeeded since establishment."

Shigehiko Fujiki,
Chairperson,
Marugo Company Inc.

and in order to inspire a healthy lifestyle. And herein lies the key mission of the 100-year-old company – delivering a high-quality product which provides comfort and safety within both the workplace and the social environment, and which inspires and helps to maintain healthy living.



www.marugo.ne.jp/en

Towa: Putting on the working gloves

For over 70 years, Towa has been a leading supplier of gloves for every industry that has required them.



"In order for our company not to lose to the competition, we are attempting to go with our niche technology to areas that China or other East Asian countries have not tackled."

Satoshi Watanabe, President and CEO, Towa Corporation

The global pandemic has shown manufacturers around the world the importance of reliable, adaptable supply chains. In fact, these characteristics can, and should, apply to every stage of the manufacturing process, down to the most minute detail.



TOWA factory

Japanese glove manufacturer Towa is one of the suppliers that works to ensure a range of industries can rely on the productivity and safety of their supply chains through its industry-leading products.

Founded in the Japanese rubber heartland of Kurume in 1947, Towa has used the innovative nature of its R&D department to grow into the world leader it is today. As company president Satoshi Watanabe explains: "Our company designates the engineer

responsible for R&D to take the lead and see through the complete production process, which we have found to be more beneficial. When a new production line is introduced in a factory, the engineer goes on-site to guide and make the necessary adjustments for better efficiency."

This process led to the creation of the ActivGrip and PowerGrab glove series, both of which con-



ROBO Glove

tain Towa's unique MicroFinish technology and are available in a wide range. This MicroFinish technology uses a soft and flexible compound filled with thou-

sands of microscopic pockets which create a vacuum when they come into contact with a surface. The vacuum disperses fluids and allows the entire grip surface to make clean contact with the object, ensuring the user's safety.

Towa's products are not only limited to industrial gloves, with the company also possessing a gardening glove range and, interestingly, the development of anti-slip covers for robots. This ROBOGlove series, which is well into the development stage, is aimed at increasing "the productivity and durability of robots while reducing the need for supervision by an operator," says Mr. Watanabe.

As has been the case across the manufacturing industry, COVID-19 impacted Towa through a sudden rise in the cost of raw materials and transportation. However, the company has established a position of strength for the "second wave" of customers seeking PPE and safety-related equipment. Whilst cheap, mass-produced items are supplied to the first line of customers who settle for inferior quality, Towa is ready to provide discerning clients with more reliable, high-quality products.

This plays into Towa's wider belief in its niche technologies providing added value, and these technologies are what protect the company from its mass-producing competitors. Unique products can never be truly imitated, and

Towa's understanding of the need to innovate keeps it ahead of the competition. This is shown by its partnership with Switzerland's Sanitized AG, whose zinc pyrithione allows Towa's products to last longer. Mr. Watanabe says Towa has its eye on further co-creation, especially with partners who can help the company shift towards recyclables and environmentally friendly products.

Towa established its international operations in the 1980s and has since expanded with factories in Malaysia, Bangladesh, and China, where it also has a sales office. The company is looking to expand into the emerging markets of Africa, South America,



and Asia, where large populations provide a wide pool of customers for its products. Towa's range of high-quality gardening and equine gloves have also played a large part in its success on the European market, and the company ensures all of its products retain the points of difference which saw its industrial gloves become best-in-class. Quality gloves give the user a true sense of trust and security. And when it comes to quality, Towa cannot be beaten.



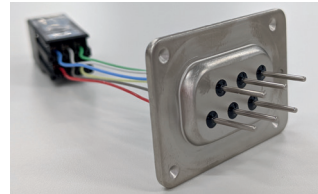
At the leading edge of the age of connectivity

A firm that recently celebrated its centenary, electrical components supplier Senba Denki Kazai is ready for the technological challenges of an increasingly connected world.

Chiefly a trader and manufacturer of electrical components, Senba Denki Kazai is a leader in Japan and a growing global influence, boasting a century of experience.

"Senba Denki Kazai was established in 1919, at a time when Japanese society was changing," says the firm's chairman, Chiharu Kishi. "A variety of industrial products

In recent years, the growth of home energy management systems (HEMS) has seen Senba Denki Kazai become a major supplier of parts for such technology. "We've developed an essential device that is required in smart gas meters," Mr. Kishi explains. "We've now achieved the top share in the Japanese market.



Device for UK market

high-capacity communication technology, as it strives to meet the needs of an increasingly digital, connected world. "Things like electric vehicles, the internet of things and artificial intelligence – everything's digitalized now," Mr. Kishi says. "Therefore, our target for future advancement is to focus on electric signals and the parts that receive those signals.

"Over time, the volume of electric signal transactions will increase, so we're trying to develop connectors that could cater to this high volume of transactions. We're collaborating



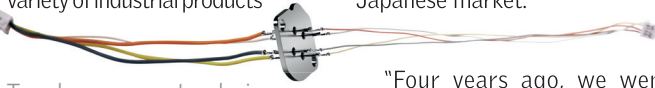
"Everything's digitalized now, so our target for future advancement is to focus on electric signals and the parts that receive those signals."

Chiharu Kishi, Chairman, Senba Denki Kazai Co., Ltd.

with universities and major small and medium enterprises, cementing alliances to become the foremost Japanese brand in high-spec cable and connectors."

**SENBA
DENKI
KAZAI**
CO., LTD.

<http://www.senba.co.jp/hems/>



Top share gas-meter device

and household goods that had never been seen before spread to the general public, and electric power and light were pushing forward. In the context of this development, our company was established to sell electrical insulating materials."

Mr. Kishi continues: "As society carried on changing, we diversified into manufacturing printed circuit boards and supplying items such as wires and terminals, adhesive tapes, high-functional film and chemical materials."

"Four years ago, we went abroad with this key device for smart gas meters. We saw the possibility of a big demand in the European market, where carbon neutrality is a big trend. Our marketing has paid off and we are now working with smart gas meter manufacturers in the UK, Germany, Italy, Spain, and outside of Europe in Egypt, Australia, and New Zealand."

Senba Denki Kazai is now also developing components for



Gas meter under development

Continuing to sail steadily while facing new directions

Just as resilient as their gearless temperature and pressure gauges, Nesstech continues to evolve and cater to the needs of diverse markets.



Heat and pressure can be utilized for the greatest of outcomes, but can also cause irretrievable damage. To be harnessed correctly they must first be measured accurately, which is no mean feat considering the high-intensity environments they are used in. Japan's Nesstech produces gauges which are built to remain accurate in any situation, no matter what the company's clients demand.

Founded in 1956, the family-owned business has grown into a global pioneer of gearless gauges through its "JO spirit" philosophy, which focuses on the concept

of healing others to achieve happiness.

The company's innovative gearless gauges are built to withstand high vibrations and absorb shocks, something gauges with gears struggle to cope with, and Nesstech understands its added value comes from its ability to innovate and adapt to changing customer needs. This is shown by the development of its SEGTEMP 50 gauge for smaller four-stroke engines. Designed to replace mercury filled gauges when they were banned, SEGTEMP 50 has gone on to become a world leader.

"We are a small-to-medium sized company which enables us to actively diversify in



Segtemp

any direction," says company president Shuro Tsukioka. This diversification has enabled Nesstech to expand overseas, with sales offices in Malaysia and India, as well as a long-established partnership with Dutch switch manufacturer BETA B.V. Mr. Tsukioka says the company is always looking for potential partners with a deep understanding of local markets. Nesstech ensures its quality is kept to the highest standard when venturing abroad, using Japanese staff to work in overseas factories to get the best out of the facilities.

The company's eye for innovation has enabled it to focus on the production of digital and electronic instruments to prepare for changing demands in the next 5-10 years, ensuring that as the



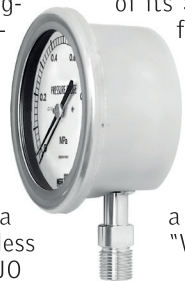
"Our company philosophy is the 'JO Spirit', which also expresses the concept of helping others, even competitors. If you can help people, this leads to happiness and gratitude."

Shuro Tsukioka, President & CEO, NESSTECH INC.

pressure in the market increases, Nesstech will prove as resilient as its products.

NES

www.nesstech.co.jp/English



Gearless Pressure Gauge



Union-Edible Ink



The century-old ink experts leaving their imprint on the global market

A specialist in thermal transfer ribbons, Union Chemicar is targeting growth in other product areas, such as the thermal inkjet market, as it continues to strengthen its significant international presence.

Founded in Osaka in 1905, originally as a manufacturer of carbon paper, Union Chemicar is a major B2B supplier of imaging products for printers, specializing particularly in thermal transfer ribbons. The firm, which has expanded from Japan to several international locations in recent decades, also produces inkjet, thermal inkjet

it will be printed on, is analyzed first, and we come up with the most appropriate and long-lasting ink formula. If you see other major companies, especially in China, they have one type of ink which they mass produce and make applicable to different mediums."

Established as a leader in the thermal transfer ribbon market,

Working towards a greener future is key to Union Chemicar's plans. "Our product's main component comes from crude oil, so from an environmental standpoint, it may be considered challenging," Mr. Kimura says. "However, our products sustain people's daily lives, and we're trying to reduce our environmental

"Our next area of focus is thermal inkjet ink, because it's more environmentally friendly and there is growing demand."

Eiichi Kimura,
President,
Union Chemicar Co., Ltd.

says. "As for our present international expansion, even though the U.S./European thermal transfer ribbon market is close to saturation, we have a firm basis in the TTO/Marking-Coding segments, where we can still gain more share. However, it may not be as easy to develop the thermal transfer business as we have done so before," he says. "So, it's natural for us to look to Southeast Asia, South Asia and China, where there's big potential for growth." Pushing its thermal inkjet and edible inks is also integral to the firm's plans for international expansion, Mr. Kimura notes.

Union Chemicar also aims to widen the scope of its activities to other areas of the printing process. "We've been producing and providing ink used for marking and coding by working together with our customers," Mr. Kimura says. "However, we believe there's a limit to this business model. We're now trying to expand into other fields and become a whole system integrator. We're a latecomer in the thermal inkjet business, so we're looking to partner with manufacturers of printers, such as laser and handheld printers, and work with them to develop new machines, systems and ink, as well as find new partners who could distribute our products."



Thermal Transfer Ribbon



Thermal Inkjet WOCCS



Edible Ink

and edible inks, as well as stationery items such as correction tapes and glue tapes.

A central tenet of Union Chemicar's philosophy as a company, says President Eiichi Kimura, is its commitment to meeting the precise needs of every customer. "Our business model is based on creating a special formula for each medium we print on, like PET, PPP or fabric," Mr. Kimura explains. "For example, if we're printing on a label, each receiver, or the content

Union Chemicar's sights are now set on developing other aspects of its product portfolio. "Currently, a large part of our profits comes from thermal transfer ribbons," Mr. Kimura says. "However, our next area of focus is thermal inkjet ink, because it's more environmentally friendly and there's a growing demand for these kinds of products."



Union-Correction Tape

impact. We're recycling our solutions such as MEK and toluene, and trying to ship our exports efficiently by loading more products into one container. In addition, the use of plastic for plastic bottles has changed – previously, they were much thicker – and similarly we would like to reduce the amount of material used for each of our products."

Having begun a process of global expansion in 1989, Union Chemicar boasts overseas sites in eight countries in Europe, North America and Asia, and is focused on strengthening its presence in its home continent, Mr. Kimura