

# JAPAN

## The Dawn of a New Manufacturing Era

For centuries, Japan has been renowned for its superior level of craftsmanship in manufacturing. The forging of a samurai's sword was considered a sacred art, and today the ancient spirit and philosophy of monozukuri (the art of making things) lives on in Japanese companies, both large and small.

But in today's world, these companies are not only concerned about beauty, functionality and quality; sustainability is also an important consideration. This has led to a green manufacturing revolution, which has coincided with the advent of the fourth industrial revolution. As we approach the third decade of the 21st century and the beginning of this new era of manufacturing, Japan wants to place itself at the forefront of industrial innovation once more.

"The Monozukuri philosophy does not only mean manufacturing, but rather everything that surrounds it: design, material control and service," says Toshihiro Kuriyama, President of ALPS Electric, which makes electronic components for consumer electronics such as smart phones, and the automotive industry.

"There's a long history of Japanese craftsmen that have been producing products for hundreds of years that are of high quality and that continuously evolve thanks to new technology," says Shigeyuki Nishimi, President and CEO of Saginomiya Seisakusho Inc., which

"The Monozukuri philosophy does not only mean manufacturing, but rather everything that surrounds it: design, material control and service"

Toshihiro Kuriyama,  
President, ALPS Electric

makes automatic control and vibration test systems for a range of applications and industries, mainly for air conditioning units, refrigeration units and the automotive industry.

Saginomiya will celebrate its 80th anniversary in 2020, and has established its mid-term management plan, 'Progress 80', which consists of three core business strategies: innovation, business structure improvement, and globalization. In 2008, it established Saginomiya America, which develops advanced electronic temperature control systems and technologies that make air conditioning and refrigerating units more energy efficient.

Earlier this year, the company presented some of its latest innovations at an exhibition in Chicago, under the theme of "Preserving environment with advancing energy efficiency and nature friendly technologies." These included a pressure sensor for variable refrigeration systems; the UKV-F electronic expansion valve for residential air



conditioners; and a control system for low global warming potential (GWP) refrigerants, all of which contribute to environmental protection.

"When we look at our history, we have been manufacturing here in Japan. In the case of air conditioning, we started a little after the American manufacturers so we focus on our products units that are compact, and environmentally and economically beneficial. We believe that there will be business potential in the future in regards to helping the American AC systems become more energy efficient and more environmentally friendly," says Mr. Nishimi.

"Our pressure sensor and electronic expansion valve are our current best-selling products. They are used in rather advanced air conditioner units that have a higher efficiency for energy saving and are more environmentally friendly. For greater performance and efficiency, our customers use these products."

Like many forward-thinking Japanese companies, Saginomiya foresees the adoption of fourth industrial revolution technologies such as artificial intelligence (AI) and the Internet of Things (IoT) to enhance the performance of its products. "In the near future, by using AI or IoT, we can link together and control

sensor, and controller," explains Mr. Nishimi.

"We can illustrate that: if AI is the brain, our sensors are like the five senses. The actuators, such as valves, are the arms or legs, and the controller is the muscle. So our products are essential items for the total system; and our R&D has the capability of enhancing technologies related to those items."

The adoption of fourth industrial revolution technologies is also a focus for ASTI Corp., which develops electronics for cars, the home and telecommunications, and has recently expanded into the medical field.

"The fourth industrial revolution, with technologies such as AI, robotics, factory automation and big data are critical to our industrial revolution. Here at ASTI, using these technologies will be crucial in our development, and we will of course be adapting them to our medical activities," says president, Nobukazu Suzuki.

One of the world's leading toilet manufacturers and a well recognized brand in the U.S., Toto is another Japanese company helping to make U.S. homes and businesses more sustainable – by reducing energy and water waste in the rest room. A standard toilet consumes 1.6 gallons of water per flush. And

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with multiple use each day, water consumption skyrockets. Aside from water, an enormous amount of energy is used over time also (0.0037 kilowatt hours, the equivalent of burning 0.003 pounds of coal, is required to put one gallon of water going through a cycle of collection, purification, waste removal and return to the aquifer).

The technology behind TOTO's environmentally friendly toilets allows them to only require one gallon of water per flush; and are becoming more apparent in restrooms across the U.S. The company's most expensive model, the NEOREST features innovations such as the Tornado/Siphon Jet Flushing System, the Actilight UV light cleaning system built in lid, and a programmable energy saver system.

"We believe that we can continue to grow our market in the United States. Consumers' appreciation for the innovation and superior technology of the TOTO brand has been increasing slowly throughout the country," says president, Madoka Kitamura.

"Our most expensive NEOREST toilet costs \$10,000. At first customers might laugh, but when they see the advanced personal cleansing, flushing, bowl cleaning technologies that we deploy in this smart toilet, they understand the value behind our price tag. But profit is not our main goal. It is a means and a method to reach our final goal – improving people's quality of life while protecting the planet and its water."

Tecnisco is another company committed to sustainable manufacturing, and is a leading producer of precision processed glass, metal, and Si products for a range of markets, including the automobile and life science industries. Like many Japanese manufacturers, it



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Special thanks to: ASTI Corp. and  
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Shigeyuki Nishimi, President  
and CEO, Saginomiya  
Seisakusho Inc.

faces stiff competition from the likes of China and South Korea. But what sets the company apart, says president, Keizo Sekiya, is Tecnisco's ability to respond to market and client needs, and its adherence to the principles of Japanese monozukuri.

"Our approach is rather to respond to specific needs, in order to better utilize our technology and create something original which will directly respond to our clients' needs. It's not simply a matter of buying the appropriate technology and producing products. It's much deeper and more complex than that, especially when it comes to the SMEs in Japan, as we do not have a big budget to invest in machinery," he says.

"We acknowledge that countries such as China and Taiwan, thanks to their huge investments in machinery are catching us at a very quick pace. Nevertheless, our essence is being able to utilize existing technologies to their maximum, and that is how we differentiate ourselves."

Diversification into new industries has been key to the success of Tecnisco, and to the development of its technologies and products. Three years ago, it entered the life science market, for which it produces glass and other components for DNA analysis equipment, and medical devices such as pacemakers.

"Originally, SMEs in Japan focused on one field of activity, and it was quite rare to diversify. Slowly, as we began to diversify, we obtained the ability to combine our technology. For example, combining plat-



"The entire Toto Global Group is deeply committed to making people's lives better, protecting the planet, and keeping our water pure"

Madoka Kitamura,  
President, TOTO Ltd.

ing and dicing to create a unique product. From these experimentations, we are able to develop original products," says Mr. Sekiya.

"One of our goals is to stabilize our business on the three Tecnisco pillars. One way was to raise the brand awareness of Tecnisco in the



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Tecnisco Ltd.

life science industry. As we have only been in this field for three years, we want to start being recognized, and make it one of the pillars of our firm. The second is developing our technology in a sustainable way. This is very important for us, in order to develop original technology."

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# Food and lifestyle brands set sights on changing U.S. market

Japanese companies look to leverage on opportunities brought about from changes in demographics and consumer habits in the U.S. market

From fashion to design and onto food, Japanese brands in the food and lifestyle industry have gained market share throughout the world, and are seeking to expand their businesses globally, particularly in the U.S. market, in response to a dwindling domestic market in Japan, a result of its aging and shrinking population.

One such company is fashion clothing manufacturer Caitac Corp., which aims to take its jeans business from the domestic market exclusively to the American one over the next decade, according to president, Mr. Masaji Kaihata, who points out that Japanese citizens own 0.5 pairs of jeans on average, while American citizens own two pairs of jeans.

Mr. Kaihata entered the American with the dream of making "Made in USA" jeans. However, he recalls that Caitac's venture in the U.S. did not

start well, and the company struggled for a decade, before its fortunes changed when it partnered with a new brand called '7 For All Mankind', for whom Caitac produced 400,000 pairs of jeans per month.

"After that, there were three new brands emerging called 'J brand', 'MOTHER' (Denim), and 'RAG & BONE' which are currently our main brands in the U.S.," says Mr. Kaihata.

"In L.A. we have become the cheapest jeans manufacturing facility. Back when we started, we were too dedicated to quality, which inflated our production costs. Today, not only are we the most cost-effective jean manufacturer, but we also enjoy the quickest delivery and the highest quality delivery rate of all jeans manufacturing facilities over the past two years."

While demographical changes in Japan have posed a challenge to

Japanese manufacturers, Mr. Kaihata sees demographical changes in the U.S. as a major opportunity for Japanese fashion clothing manufacturers like Caitac and retailers like UniQlo.

"Because America is projected to have 500 million citizens in the years to come, business opportunities will arise. In the near future however, as Hispanic and Chinese immigration increases, that's when we will start to see the popularity of UniQlo rise. As we can see in China right now, the popularity of UniQlo is fast exceeding that of Zara and H&M. I believe that with the increase of Asian immigration, UniQlo's performance will improve.

"Despite his stand on immigration, it is unlikely that Trump will be able to stop the influx of immigrants. For the clothing industry, immigration is a positive development for it brings customers and workforce. At Caitac, we like to make our products in America and sell our products to America. Hopefully, we will be able to make jeans that have a value of \$200 each pair. We want to gain a 30 percent share of that market."

Another Japanese company is hoping to leverage on the growing demand for healthy food products in the U.S. market. Daiei Foods specializes in seafood and sushi-related products and has been actively exporting overseas for more than 35 years, now shipping its products to more than 20 countries. President, Mr. Yasuto Oka, believes his mission is to promote Japan's rich culinary tradition worldwide.

"Daiei Foods historically specializes in mainly sushi items but with the increased popularity of Japanese food in the U.S. and across the world as a whole, we aim to introduce more general fish-related food menus, for example mackerel, squid and tuna which are lower in price than sushi."

Mr. Oka also believes his company is in a strong position to cater to the growing demand for natural and healthy food products.

"In an effort to increase health and wellness, I wish to focus more on producing products sourced



"For the clothing industry, immigration is a positive development for it brings customers and workforce. At Caitac, we like to make our products in America and sell our products to America"

Masaji Kaihata, President, Caitac Corp.

from the actual ocean rather than products which are farmed. Daiei Foods believes that natural food is best – for Japanese people and consumers across the globe."

As an ambassador for high-quality and authentic Japanese food, Mr. Oka is somewhat concerned by the rapid growth of sushi restaurants in the U.S. run by non-Japanese owners and the consequences this could have for the reputation or image of Japanese cuisine.

"Japanese restaurants run by non-Japanese in countries such as the U.S. or Australia produce food under the name of Japanese cuisine, yet it tends to be fast food such as sushi rolls. This leaves consumers with the mindset that sushi is another choice like hamburgers from McDonald's," he says.

"Authentic Japanese restaurants run by Japanese owners may have more expensive menus but they have a set menu of slow, authentic Japanese food. I hope the future sees more authentic Japanese restaurants to which we could export our quality food products."



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# Japan at the forefront of global healthcare challenges

From cancer treatment to caring for a rapidly aging population, Japanese healthcare companies will be instrumental in the development of innovative medicines and next-generation healthcare services

Japanese companies operating across the healthcare industry – from pharmaceuticals and medical equipment manufacturers, to medical facility management consultancy firms – are leveraging on their expertise to put themselves at the forefront of domestic and global health challenges.

Indeed, one of the greatest global health challenges is tackling growing cancer rates. According to the World Health Organization, cancer is the second leading cause of death globally, and was responsible for 8.8 million deaths in 2015. Globally, nearly 1 in 6 deaths is due to cancer.

One Japanese company focusing on the fight against cancer is YMC, which is supporting pharmaceutical companies developing cancer treatments with its chromatography technologies. Liquid chromatography (LC) has been one of the most important technologies used in laboratories for many years, and is the analytical separation technology of choice in healthcare. Founded in 1980, YMC pioneered the commercialization of chromatographic techniques in the industrial and medical fields. With the rapid technological advances in medicine, YMC president, Ryuji Yamamura, forecasts "high and drastic growth" of LC applications over the coming years. He plans to take his company public within five to ten years, in order to secure investment that will allow his company to continue to pioneer LC technologies, which will be crucial to medical firms developing innovative new treatments for cancer and other diseases.

"Since new-era pharmaceutical technologies are moving from small molecular compounds to larger ones, chromatography is becoming a necessity," says Mr. Yamamura.

"One of Japan's leading pharmaceutical companies recently collaborated with an overseas medical enterprise to jointly develop a new cancer treatment. To successfully model this new treatment, they employed our product. While this new cancer treatment solution is expensive, patient recovery has been significantly improved. The incredible potential of new pharmaceutical techniques will lead to the exponential growth, and necessity, of chromatography."

YMC has been active in the U.S. for more than 30 years and works with a number of American pharmaceutical companies. In collaboration with its partners in the U.S. and across the world, YMC is focusing on cancer research, new-era antibodies, large molecular compounds and medium-size molecular peptides.

"To develop our business, we make significant efforts to nurture the relationship we have established with our trusted partners, along with a variety of venture companies. In the future, and as we will develop further cost-effective solutions, we will expand our business field. The incredible growth potential of our company represents an interesting opportunity for investors," concludes Mr. Yamamura.

One of the greatest domestic challenges for Japanese healthcare companies is the nation's rapidly aging population, which is expanding the demand for late-life healthcare services. This challenge represents a big opportunity for ITEC, which has established itself as Japan's leading healthcare service management consulting firm.

"From the construction of hospitals, to the integration and medical equipment procurement and onto staff training, ITEC's mission is to create and improve medical facilities. From the beginning to the end, and from Japan to the world, we provide consulting services to cater for the entire life-cycle of healthcare facilities," says

president and CEO, Johtaro Seki.

Japan is one of the first developed nations to face such a huge demographical shift, and many more countries are expected to face similar challenges brought about by an aging population.

"Because we will have faced this challenge before the rest, we will be able to share our expertise and experience with the world," says Mr. Seki.

"Since its foundation in 1981, ITEC has conducted more than 1,500 consulting contracts in Japan only, and in over 95 countries worldwide. Thanks to this historical experience, ITEC has acquired the right solutions to assist overseas clients, including governmental bodies, in developing the medical facilities required for the well-being of their people."



"One of Japan's leading pharmaceutical companies recently collaborated with an overseas medical enterprise to jointly develop a new cancer treatment. To successfully model this new treatment, they employed our product"

Ryuji Yamamura,  
President, YMC Co. Ltd.

## Striving to contribute to the future of science and human beings through separation and purification technologies

Today, new challenges within chemistry help create solutions to improve the quality of life. Additionally, research, development and production activities are making rapid progress in various fields by the fusion of peripheral technologies such as biotechnology. High Performance Liquid Chromatography (HPLC) is a key technology within the field of separation science for unlocking new information and for developing new products for improving life. YMC is a leading company in the HPLC field with world class research and development efforts and a global network of subsidiaries to support customers find solutions and capitalize on opportunities resulting from research efforts.

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# Astellas transforming lives around the world

Through the provision of innovative and reliable pharmaceuticals, Astellas is contributing to improving the health of people across the world

Women in isolated rural areas in the developing world are often left to give birth at home without the supervision of a qualified medical professional. As a result, labor can often be long and excruciatingly painful, lasting up to six and seven days and causing serious medical problems such as obstetric fistula, which is a hole between the vagina and rectum or bladder that causes fecal and urinary incontinence.

The Fistula Foundation estimates that around one million women are living with obstetric fistula in developing countries. The condition is often left untreated, due to the cost of surgery, as well as the lack of qualified surgeons in these countries that can perform the surgery.



In 2014, the Fistula Foundation teamed up with Astellas Pharma Europe (a subsidiary of leading Japanese pharmaceutical company Astellas) to launch 'Action on Fistula', an initiative aimed at treating women with obstetric fistula in Kenya, where there are around 3,000 new cases of the condition each year. Astellas Pharma Europe is providing grant funding of 2.25 million over a six-year period between 2014-2020

– money which has so far enabled 'Action for Fistula' to treat more than 2,500 Kenyan women with life-changing reconstructive surgery (one of these women had waited 51 years for treatment).

Last year, Astellas pledged its support to the Fistula Foundation with the launch of the second phase of 'Action on Fistula', which aims to provide treatment to 4,500 women with obstetric fistula in Kenya by 2020. Other goals under the second phase include extending its network to eight treatment centers, and training a further six surgeons from outside Kenya to build capacity across sub-Saharan Africa and South-East Asia.

Action on Fistula is a flagship program of Access Accelerated, a collaboration involving more than 20 pharmaceutical companies and organizations that is focused on improving access to non-communicable disease (NCD) prevention, diagnostics and treatment in low-income and lower-middle income countries. NCDs include cancer, cardiovascular diseases, chronic respiratory disease, diabetes and mental health disorders, which are the leading causes of death and disability worldwide.

In January 2017, Astellas announced its participation in Access Accelerated, a program through which it will work towards the United Nations Sustainable Development Goal target to reduce premature deaths from NCDs by one-third by 2030.

In 2015, the UN Sustainable Development Goals (SDGs) were adopted as the universal, integrated and transformative 2030 Agenda for Sustainable Development, along

with a set of 17 SDGs and 169 associated targets. As a leading global healthcare company, Astellas is committed to supporting the third SDG, which focuses on 'Good Health and Well Being'.

"We have an important social responsibility to improve access to health for patients around the world, and we will help develop sustainable solutions," said Yoshihiko Hatanaka, President and CEO at Astellas.

## Neglected tropical diseases

Neglected tropical diseases (NTDs) affect around 1.5 billion people and cause around 150,000 deaths per year. These are harrowing statistics, considering the treatment cost for most NTD mass drug administration programs is estimated at less than 50 cents per person per year, according to the United States' Centers for Disease Control and Prevention.


Astellas has put itself at the forefront of combatting NTDs. Since 2012, Astellas has partnered with the NTDs Drug-discovery Research Consortium, whose research targets four diseases: leishmaniasis, Chagas disease, African trypanosomiasis (sleeping sickness) and dengue fever.

The Integrated Neglected Tropical Disease DataBase (iNTRODB), which helps researchers to identify and choose promising drug target proteins, was the award-winning result of successful collaboration between Astellas, Tokyo Tech and the University of Tokyo. By giving every researcher free access, the iNTRODB has accelerated drug discovery research for NTDs around the world.


In April 2016, Astellas signed a new collaborative research agreement with the National Institute of Advanced Industrial Science and Technology to discover anti-protazoan parasite drugs for the treatment of Chagas diseases – a NTD for which treatment is urgently needed.

These are just a few examples of how Astellas is contributing to improving the health of people around the world. The company will continue to work with health organizations, research institutions, pharmaceutical companies and other stakeholders, in pursuit of achieving the targets set out the UN's third SDG on 'Good Health and Well Being'.

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## Turning Innovative Science into Value for Patients

Astellas is committed to turning innovative science into medical solutions that bring value and hope to patients worldwide. Every day, we work together to address unmet medical needs with a focus on urology, oncology, immunology, nephrology and neuroscience as prioritized therapeutic areas, while advancing new therapeutic areas and leveraging new research technologies. We remain dedicated to meeting patients' needs, and our support for them will never waver.

At Astellas, we're focused on making changing tomorrow a reality.