

SPINNING GOLD FROM GREEN BONDS

SPECIAL
ISSUE

CAN MR BEAST BREAK A BILLION?

THE BUZZ ON ELECTRIC PLANES

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30
UNDER
30

MEET THE CLASS OF 2023:
600 PIONEERS RESHAPING THE FUTURE
OF 20 INDUSTRIES—AND THE WORLD

Stream Queen
MEGAN THEE
STALLION

"I'LL TAKE A BREAK
WHEN I'M DEAD.
I'M TRYING
TO REALLY BUILD
SOMETHING."

HAYASHIBARA: creating new value in the food market and beyond with innovations and solutions of functional carbohydrate

Since its foundation in Okayama, around 140 years ago, Hayashibara has succeeded in becoming a prolific and innovative company, one of the major starch syrup producers and the first to mass produce glucose using enzymes. Under Mr. Naoki Yasuba's assertive guide, Hayashibara currently stands out proudly as a thriving carbohydrate manufacturer, with an immaculate reputation acquired through the development of an ever-increasing number of ingredients using the natural power with naturally-derived raw materials.

Across all the company's production areas, being Food Ingredients, Health Food Ingredients, Personal Care, Pharmaceuticals and Functional dyes runs a pervasive thought: 'to incorporate added value'. This is paramount for the food sector with flagship products like TREHA™, high-purity trehalose, a naturally occurring, not-very-sweet sugar that preserves freshness, enhances flavor and improves texture.

Far from being limited to food, Hayashibara's uses their expertise for pharmaceuticals and cosmetics as well, contributing to the creation of cells and proteins stabilizers,

vaccine adjuvants in the field of regenerative medicine and excipients. AA2G™ is produced by the enzymatic binding of glucose to vitamin C and helps deliver healthier, brighter and younger-looking skin in cosmetic products. Mr. Yasuba remarks: "We see many opportunities especially in personal care and agricultural market. Therefore, we want to find out what issues people experience daily and provide them with solutions, taking our company's know-how to create value to the world". Added value is indeed the driving force behind Hayashibara's R&D department, where advances are made in strides, fruit of minute and relentless investigation of novel applications for all types of functional carbohydrates, proactive networking with external researchers, maximization of enzymatic natural functions, and amplification of the materials' natural functions, so as to create new applications in extended fields.

Mindful of the fact that global conundrums are solved solely through collaborative work, expansion in markets across the world is one of Hayashibara's priorities, especially in a challenging US market where lifestyle and cultural differ-



NAOKI YASUBA
Representative Director

ences are pronounced. Mr. Yasuba eagerly shares: "I respect diversity and I strive for it in my company. We have paired with Nagase group companies including Prinova and developed unique solutions to satisfy the American market, as great minds come with great ideas. That's the kind of energy needed to expand: Diversity and flexibility is necessary for sustainable growth".



www.hayashibara.co.jp/data/en/



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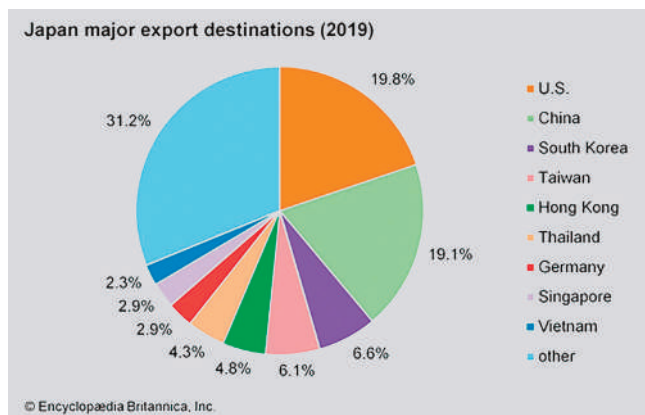
**Hayashibara has been
awarded a "Gold" rating in a
sustainability assessment.**

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Monozukuri, the irreplicable component that makes the Japanese manufacturing industry truly unique

The 'Made in Japan' brand has long been synonymous with high quality. And behind the superior Japanese quality that Nippon manufacturers offer is the mono-zukuri philosophy, which focuses on craftsmanship, attention to detail and the constant pursuit of innovation to meet client, market and social demands. And while Japan has faced stiffer regional competition in recent years, the 'Made in Japan' brand still dominates when it comes to niche B2B fields, where mono-zukuri-made parts, equipment and materials are still the top choice for clients seeking unbeatable quality.



Adaptation and diversification are also key to long-standing mono-zukuri companies focused on ever-changing market demands. But in today's world, these companies are not only concerned about reliability, 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.

The Hidden Champions

While some of Japan's best-known manufacturers have lost ground to regional rivals in recent years, it is the country's Chuken Kigyo – strong, medium-sized companies – that continue to fly the national flag, enjoying strong global market shares in niche areas.

Whereas companies such as Panasonic, Sharp and Sony have lost market share to regional rivals, Japan's smaller, lesser known manufacturing firms continue to dominate niches upon which the global technology industry depends. The story of Chuken Kigyo is one that is more seldom told about the Japanese manufacturing industry – the story of the country's economic backbone, or what one might call 'the hidden part of the iceberg'. Chuken

Kigyo is also a symbol of Japan's great manufacturing and technological prowess. Now though, the country's strong, medium-sized companies are leading Japanese manufacturing into a bright new era – one that is defined by the technological innovation and efficiency that Japan excels.

Backbone of the Japanese Economy

To understand the importance of Chuken Kigyo to the Japanese economy, one must first get a sense of its scale. In 2019, the Economic Census for Business Activity estimated that SMEs and LMEs (large medium-sized enterprises) accounted for nearly 97 percent of all Japanese enterprises. Smaller in size, greater in corporate flexibility and highly specialized in precise products they have built upon their historical expertise to transform themselves into qualitative and innovative powerhouses. Indeed, thanks to their extremely high level of technological prowess, Japanese SMEs have become the undisputed market leaders in many B2B sectors and are responsible for providing the quality required to make complex end-products.

Key Player in the International Supply Chain

It has been estimated by the Japanese Ministry of Economy, Trade and Industry (METI) that within the past decade, Japanese companies served more than 70 percent of the worldwide market in at least 30 technology sectors. It is within these very niche and specialist sectors that quality remains king. While many technology products have become commodities, certain components have not as they require continual innovation. This is what all Japanese technology champions have in common: a strict attention to detail and a tendency to invest handsomely in research and development.

The global digital transformation that has been occurring since the middle of the last century, characterized by a fusion of technologies that is blurring the lines between

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the physical, digital, and biological spheres. Evolving at an exponential rate with unprecedented processing power, storage capacity, and access to knowledge, are unlimited. And these possibilities will be multiplied in the coming years by emerging technology breakthroughs in fields such as artificial intelligence, robotics, the Internet of Things and autonomous vehicles. Recognized as an international hub of technological innovation, Japan is expected to cement its place as a leader of this global industrial movement in the coming decades.

Spirit of Innovation

In a bid to position itself at the forefront of innovation once again and to ward off competition from regional rivals like South Korea and China, Japan is boosting investment in R&D across the board, from the nation's biggest conglomerates like Toyota, Honda, Panasonic and Sony, to smaller, lesser known B2B firms in specialized industries. A survey released this year concludes that total R&D spending by major Japanese companies is set to rise 4.5 percent on the previous year, which will be the ninth consecutive year of growth. These Japanese companies are aggressively investing in innovative technologies, ranging from AI and robotics, to biotech, compound

materials and chemicals – technologies which they see as key to future competitiveness.

Leveraging on their capacity for innovation and the Japanese reputation for high quality manufacturing (largely seen as superior to the regional competitors that have emerged in recent decades), these companies are primed to reap the potential of new emerging markets like fast-growing South East Asia, while some are going farther afield into the more developed markets of Europe and the U.S.

