Ever since the launch of its bullet train in time for the 1964 Olympics, Japan has been synonymous with technological innovation and now it is on track to reclaim the high-tech top spot.

For decades Japan has stood center stage as the hub for technological innovation. Formidable brands such as Toyota, Sony and Nikon have paved the way for innovation, and Japan has secured its reputation as a global leader in the high-tech industries by consistently exceeding consumers’ demands with its exceptional products.

Regional pressures on the technological front from neighbors like Taiwan, China and Korea relegated Japan’s reputation as the epicenter of innovation to former times. Global giants like Apple and Samsung, with their superior and popular products, have taken the spotlight off Japan and left its companies behind.

Whether it is from institutional rigidities or a residual effect of the recession, Japan’s slow response to new competition is only momentary. On the tail end of decades of stagnation and recession, Prime Minister Shinzo Abe’s introduction of Abenomics has been applauded by many Japanese CEOs in the private sector. It is seen as a successful mechanism to rejuvenate Japan’s inherent technological superiority and to deliver it to a global audience.

“Japan will change. Let’s create a country where innovation is constantly happening, giving birth to new industries to lead the world,” Mr. Abe says.

While the foundations for the Prime Minister’s strategy exist, the challenge facing many Japanese tech companies is how to utilize their technological superiority to grow rapidly and profitably, whilst catering to a global market and maintaining their competitive advantage. At present there are hundreds of Japanese companies nurturing unique, cutting-edge and possibly unparalleled products and technologies. “Are we (Honda) leading the world? I personally believe we are still behind. But our challenge is to speed up our developments,” argues Takahiro Hachigo, President, CEO and RD of Honda Motor Co., Ltd.

By identifying inefficiencies, and constantly developing new products and embracing durable growth, Japan will be able to increase its corporate value on a global scale and once again define what it means to be “Made In Japan”. The private sector is taking a leadership role in this resurgence and is embracing this momentum to compete on a global scale. Companies such as Cosmo Energy Holdings Co., Ltd. or Harmonic Drive Systems Inc. are at the forefront of this surge, and represent the innovation and competitiveness now emerging in Japan.

Makoto Nakagawa, President of Sansei Technologies, Inc., a firm based in Osaka that specializes in the manufacturing of amusement rides, stage equipment and elevators, says, “Engineers get excited when they try to explore or make new products. Otherwise, engineering is a very boring job. People in our company, especially good engineers, are trying to be assigned to do new projects that nobody has tried. That is probably the nature of engineers, to be challenged continuously, and this is how we got to innovate in the past and still do.”

While there is no single solution for these companies, each must develop their own individual strategy for the future, which embraces their key strengths and values to unlock burgeoning markets. They must diversify their products and focus on their strengths as complex solutions providers.

“For the last few decades, all of the innovations in Japan were driven by big companies like Toyota, Honda, Sony, and so on,” says Taizo Son, President and CEO of Mistletoe, Inc., a leading start-up incubator in Japan. “They came from big companies rather than independent startups. Many of Japan’s talented minds were in large, rather conservative companies, where they stayed, and the startups were spawned from larger corporations. Now, I’ve found, especially in the last six months, that many professionals are finally quitting the big companies and beginning their startup company by themselves.”

While Japan has experienced a state of flux and stagnation in high-tech industries, key innovation from its leading private sector companies is once more exemplifying Japanese excellence and brand value. Trust and reputation are vital today and will allow them to secure their international leadership in innovative technologies, and utilize such industries in Japan’s growth.
The fourth industrial revolution, an opportunity Japan can’t afford to miss

Through the promotion of new technologies, artificial intelligence and the Internet of things, Japan is positioning itself to be a major figure in the fourth industrial revolution.

While the Olympics in Japan in 2020 offers some economic respite for the island nation, Prime Minister Shinzo Abe has identified the next economic driver to further stimulate Japan’s economy. Mr. Abe’s trump card to grow the economy is to promote the fourth industrial revolution aimed at boosting productivity through the use of new technologies, artificial intelligence, and the Internet of things (IoT), and connecting these services with industry. The fourth industrial revolution has been the next economic driver for some of the world’s most technically advanced regions, like Europe, the U.S. and now Japan.

As a result of decreased investment in research and development technologies and a lack of investor confidence triggered by the global financial crisis, the government has compiled a new draft that features a strategy to promote the fourth industrial revolution as an economic booster. The draft includes the establishment of a public-private council to drive this campaign and assist Mr. Abe’s pledge to increase the country’s annual nominal gross domestic product to 600 trillion yen (roughly $5.7 trillion) by 2020.

If Japan is to realize this target, it will need to look abroad to other markets for further growth. The Trans-Pacific Partnership (TPP) trade deal is a tool that local companies can leverage to increase profitability and competitiveness globally. In a bid to increase international revenues to balance the lack of domestic consumption, many firms have already aligned their companies to go global.

Ichizo Yoshikawa, President and Chairman of Suminoe Textile Co., Ltd, which supplies interiors to the automotive and hotel industries worldwide, has many foreign clients, especially in the United States. “Companies have to grow,” says Mr. Yoshikawa. “If you are thinking about growing in scale, it is indispensable to go global. We have to have two separate strategies: the global strategy and the domestic strategy.”

Mr. Abe said recently that the “fourth industrial revolution depends on us and provides tremendous opportunities that Japan cannot afford to miss.” This revolution is not only about creating cutting-edge technology, it is also about finding solutions to improve people’s lives across the globe.

The necessity to foster superior domestic technologies as a means of growth has been embraced by the likes of local firm Harmonic Drive Systems Inc. (HDSI), which produces and sells mechatronic products and speed reducers, and is forecasting major demand for its products. President and CEO of HDSI Akira Nagai says, “The reason I have put some expectation of growth in the future is because the ‘cobots’, which is an abbreviation of collaborative robots, are expected to work together with human beings. This will grow drastically. According to a Barclays report, the market will reach 1.5 trillion yen by 2025.”

HDSI is also an excellent example of successful Japanese-U.S. collaboration, having started out four decades ago with an ingenious American inventor, C.W. Musser – the father of some 1,500 patents. “The reason why we have been successful executing a trans-national operation is because we have a unique product,” adds Mr. Nagai.

As one of the driving factors behind the next revolution is the IoT, companies are already collaborating with developed ICT markets, such as Japan’s Systena Corporation, which is using online technology to complement big American companies in the auto sector.

“We are especially looking at the automobile industry. We are working together with automobile manufacturers to facilitate not only the automatic driving technologies, but also thinking about how we can link sensing technologies with IoT,” says Kenji Miura, President and RD of Systena Corporation.

With the new structural reforms focusing on improving productivity and dramatically increasing foreign revenues, the fourth industrial revolution is a monumental growth sector for the Japanese. Many of Japan’s largest companies are leading the change in this space. Takahiro Hachigo, President, CEO and RD of Honda Motor Co., Ltd, says, “The fourth industrial revolution implies robotics and other hardware fields where Japan is leading, for sure.”

The IoT and artificial intelligence, as well as the TPP combined, have provided this previously isolated nation with the right foundations to be once more a dominant player in globalisation’s new wave.
Monozukuri, the Japanese way of instilling values of responsibility and consequence for the world at large

Embodying the spirit of excellence and focusing more on the art of craftsmanship and conscience, rather than the pure mechanics of creation, Monozukuri sets Japanese quality apart.

The Japanese philosophy of Monozukuri has meanings beyond the literal. Essentially, in English it means "craftsmanship"; in translation, "mono" is the thing made or created, and "zukuri" refers to the art of making. But in practice, it is an art, rather than a science.

Monozukuri embodies the spirit of excellence and emphasizes more on the process of the item being made and less on the qualities of the person making it. It is this differentiation that sets the quality apart and represents the Japanese sense of responsibility for the value of materials and production, and their respect for the tangible and intangible in this world at large.

The embodiment of this tradition applied to industry has produced the flat screen, mobile phone camera and hybrid car. The pride in making things well and continually focus on the production process is what has allowed many Japanese companies to survive for over a century.

A Monozukuri company such as Suminoe Textile Co., Ltd. has embodied this tradition for over 100 years. It is producing leading quality interior products for the automotive industry that are in tune with these values.

"There is a saying in Japan; everybody is happy in three directions – when the seller is happy, purchaser is happy, and society is happy. In a way, that embodies our contribution to society," says Ichizo Yoshikawa, President and Chairman of Suminoe Textile. "Preserving the traditions from the past, to further connect them to the future is a very important thing."

It is believed that it is this love of craftsmanship that has helped incubate the Japanese love of automation and engineering. It is also equally important that in the process of achieving perfection that the worker is not wasteful or frivolous with resources. "In our philosophy, we cannot only pursue the profit or happiness of ourselves, but we have to think about the happiness and profit of other people. Unless we have that, we cannot stand as a corporation," states Katsuhiro Futamura, President and CEO of Hoden Seimitsu Kako Kenkyusho Co., Ltd. (HSK).

HSK, a Japan-based company principally involved in the contract-ed manufacture and sale of dyes and machinery parts, has collected top-tier clients in the aerospace industry, like Airbus and Rolls-Royce, with their superior products.

"Every year we have fresh high school graduates. It takes about 20 years for an engineer to be qualified to this level. Our business is about craftsmanship and Monozukuri, but it does not entirely depend on the individual skill. The trick is, we have a corporate culture whereby nobody will tolerate submicron differences," says Akira Nagai, President and CEO of Harmonic Drive Systems Inc.

It is the notion of perfection that is learned through extended apprenticeship experience as opposed to the structured curricula taught at schools. Industry leaders with a global customer base like Harmonic Drive Systems Inc., which deals in the production and sales of mechatronics products for incorporation in industrial robots and semiconductor manufacturing equipment, maintain that customers like NASA from the U.S. come to it simply because it is the only company that can satisfy their stringent requirements.

"With the application of the deflection of metal and elastic mechanics in the power transmission device, the strain wave gearing was invented by the genius inventor C. Walton Musser in the middle of the 1950s. We were the first company in Japan to have successfully implemented strain wave gearing technology, which we call the Harmonic Drive®. We have been working to improve the product so we can contribute to motion control society in varying fields, starting with the robot industry. From the experience and technology that we have fostered through over 50 years, the Harmonic Drive® is still evolving."
Japanese technology creates global problem solvers

Many companies are identifying highly lucrative opportunities to export high-tech Japanese products, services and know-how, particularly to emerging markets. An increasingly globalized world has added many benefits and risks, particularly for a market such as Japan. While the ongoing financial crisis has pulled many countries into economic recession, a slew of economic reforms from the Japanese government are seeing the island nation climb its way out of two decades of deflation. Furthermore, huge growth potential has been identified by the private sector as a way of capitalizing on emerging markets by delivering Japanese technological high-tech products and services to the world, particularly in niche areas.

“Sansei Technologies’ main clients are in the U.S and Europe. We do not have many clients in Asia, so the Trans-Pacific Partnership (TPP) will help us expand our share in the Asean region, as the countries are growing and we see potential in the area in the next five to 10 years,” says Makoto Nakagawa, President of Sansei Technologies, Inc., an amusement ride manufacturer whose reputation is world renowned. “Disney does not allow vendors to say, ‘Disney is our client.’ However, we are among the few companies in the world allowed to say it because they trust us and are not worried about being associated with our brand,” explains Mr. Nakagawa.

The signing of the TPP must be accompanied by domestic policies that will extend the benefits the deal will deliver to the entire country. By fostering trade with regional neighbors and existing business relations, many local companies stand to gain from the new agreement.

“It is important to create something that can be differentiated in the Japanese market and also be competitive in the global market. It is a good idea to target the ‘pro-Japanese’ countries, like Thailand and Vietnam. Especially, to follow the movement like in the automobile sector and expand where Japanese companies are already present,” says Kenji Miura, President and RD of Systena Corporation. “IoT is our core idea and we are strategizing how to utilize this in the global market and export Japanese technology.”

Not only will there be regional benefits, but the agreement will be important for U.S.-Japanese relations and the new era of a more coordinated, sustained and combined commercial and security collaboration in Southeast Asia. In a bid to secure international leadership in emerging markets, the U.S. and Japan are focusing on several drivers that are critical to this development.

These drivers include the huge commercial stakes the two nations have in the region, who therefore share an interest in the stability and security of its future. The rising prominence of the Asia-Pacific as a growing market and an important integrated trading partner of both countries is pivotal to strengthening their economies. Southeast Asia is key to regional defense and the ongoing threat of China’s rising assertiveness in the region is critical in driving a mutual interest in enhanced collaboration, including the 2015 revised defense guidelines. These drastic reforms aimed at revitalizing the economy will provide immense opportunities for international Japanese corporations, like Sony and Panasonic who, as Abenomics strengthens the yen, see tighter profit margins from overseas operations. As well as making exports from Japan more expensive, the situation is making it more attractive for competitors to import and sell in Japan. But domestic companies that are competitive and green in their approach can stifle their international competitors. “Our facility does not have an equivalent in the world, and our recycling and waste collecting system cannot be found elsewhere either,” claims Ichizo Yoshikawa, President and Chairman of Suminoue Textile Co., Ltd.

Understanding the need to combat global competition, Japanese tech companies are amalgamating their resources to be more competitive. For example, a merger between the LCD operations of Sony, Toshiba and Hitachi gave birth to Japan Display, a major supplier to Apple.

Once labeled as having Galapagos Syndrome – a symptom that explains how Japan’s culture, consumer trends and ideals differ to Europe, the U.S. and Asia – Japan is experiencing a departure from this term as it demonstrates it is capable once again of producing companies and services competitive in world markets.

It is clear that Japan is changing, spearheaded by the innovative high-tech industry with support and direction of Mr. Abe’s policies. New technologies and demand for unique services and consumer electronics on a global scale have produced greater optimism and confidence in Japan's economic future. The main policy that changed is the push to go international, and the key to the future is adapting to this shift in globalization.

Keizo Morikawa, President, RD and CEO of Cosmo Energy Holdings Co., Ltd., is an advocate of the new reforms from the Japanese administration and the new perception Japan is creating as an integrated global economy. He says, “Mr. Abe is a challenger, and (former Economy Minister) Akira Amari, for example, was very aggressive in TPP negotiations. We do have our shy side, but I’d like them to know that we also have this outgoing, very globally minded perspective as well.”
The quest for the right power mix sparks surge in green energy potential

Top Japanese companies are now distancing themselves from their country’s over-reliance on nuclear power generation to focus on safer, economically efficient, renewable sources.

Energy production methods are constantly changing in today’s volatile world, and major Japanese companies in the power and energy sectors are now targeting the huge potential in rising demand for cleaner, safer, and renewable sources of power.

One such key enterprise is NGK Insulators, Ltd., a Nagoya-based ceramics firm producing insulators and sodium-sulfur batteries that are used for grid storage of such sources, including wind and solar, thus providing a viable and highly effective “green” solution. Each of its systems typically comprise 40-50kW units that produce a combined total capacity of 12,000kWh. Its installations operate worldwide – primarily in the U.S. and at home in Japan – and effectively reduce emissions and supply energy power. Insulators are widely used in transmission and distribution networks to prevent energy loss by acting as a barrier between current-carrying cables and supporting towers, and in its new 14,000 square meter installation opened in March, NGK can store up to 300,000kWh of energy.

“From our initial aim was to reduce the peak electricity load by storing the electricity during periods of low demand and discharging it during periods of high demand, a practice known as ‘load leveling’ or ‘peak shift,’” says the company’s President Taku Oshima. “Demand for this type of usage has gradually decreased, but in its place we now see an increasing demand in the field of renewable energy, and though this sort of supply is very unstable, our battery can level and stabilize it.”

“The technology behind NAS batteries is very complex,” he continues, “and its most difficult aspect is in its use of Beta Alumina, which merges ceramics and metal. We started developing this type of battery in 1984 and jointly researched it with TEPCO (Tokyo Electric Power Company). Eighteen years later, we alone succeeded in commercializing our product.”

The NGK president also places a high value on the quality of his workforce and feels it is important to motivate them to think freely and flexibly. “As our employees come from a wide range of cultures and mindsets, it is important for us to arrive at a global level of mutual understanding in which we regard the world as one,” he adds.

PV system specialist Infini Co., Ltd. also has an international mindset. “Infini wants to be a part of Japan’s global expansion, and to work with European and U.S. companies as informed partners,” says CEO Tomoyuki Oyakawa. “For developing countries, we would like to assist them by supporting them technologically, and help them expand their alternative energy infrastructure. Not only solar power, but also biomass, gas and wind energy.”

Another prestigious company, the 30-year-old Cosmo Energy Holdings Co., Ltd., is the third biggest Japanese oil refiner by sales, after JX Holdings and Idemitsu Kosan. It imports, refines and sells crude oil and develops oil resources, including the manufacture of petrochemical products. At present its main import source is the Middle East, though from next March Cosmo will also begin importing crude oil from the U.S.

Its President, RD and CEO Keizo Morikawa points out how Abenomics’ monetary easing policies have influenced the company’s activities: “We have conducted operational reforms in areas of over-capacity, especially in the oil industry, and a reduction ruling here is going to be implemented by 2017.”

“We aim to become a vertically integrated global energy company,” he continues. “So we are working not only on developing fuel and energy in Abu Dhabi and Qatar, and providing fuel in over 3,000 gas stations, but also in other related fields such as car leasing, insurance and maintenance, where we hope to make a good profit while providing an essential service to our clients.”

Mr. Morikawa defends the damaging effect that petrol-based fuel inflicts on the planet by pointing out the level of convenience and comfort it offers people living in today’s world, and cites Cosmo’s new venture into wind power generation as a profitable, forward-looking “clean-air” move. “There has been a feed-in tariff, F-I-T, so we have figured that this aspect of energy production is not only profitable, but it is environmentally friendly as well,” he says.

Akira Nagai, President and CEO of gear manufacturer HDST, highlights his company’s greener side too: “Using our gears is ecological because of their light weight and very minimal amount of parts – instead of using so many gears, you can have one. This is why they are used on NASAs satellites.”

Keizo Morikawa, President, RD & CEO, Cosmo Energy Holdings Co., Ltd.

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Akira Nagai, President & CEO, Harmonic Drive Systems Inc.
In the face of innovation and global phenomena, the Japanese toy industry has managed to not only transition into a new era of entertainment, but also increase its business worldwide.

Many established companies in the sector are developing unique campaigns to secure a wider audience that not only targets children but adults too.

CEO of Tomy Co. H.G. Meij comments that new technologies, in parallel with popular traditional toys, are hybridizing in order to expand into new demographics. Mr. Meij, who in 2015 became the first non-Japanese chief of Tomy, says, “When I came on board, I said that the world is changing so dramatically that we have to change the whole company again for the next 30 years, starting in 2014. We call that the fourth revolution; it is all about the merging of analog toys with digital technology.”

He continues, “However, we don’t have to be, or ever should be, 100% digital, because we believe there is a very important role in having toys you can actually put in your hands, but they need to be augmented with digital technology.”

For Tomy, such innovation means new opportunities with product technology and new audiences. For others, meanwhile, it is important to maintain the reasons people loved toys in the first place. President of Epoch Co., Ltd. Michihiro Maeda, for instance, is one executive trying to widen his company’s customer audience by connecting childhood obsessions with adulthood interests.

“During one’s childhood, kids love many toys, but as they get older and become teenagers, they look back at that toy they once loved and cannot remember why they loved it so much... it has lost its magic. We want to create the kind of magic that stays all the way to adulthood, so even adults can feel and remember the beauty of the toy,” explains Mr. Maeda. “Sylvanian Families are loved all over the world by girls who eventually become teenagers, and adult mothers, and they still love our products. Then they will share their passion for these toys with their daughters and the cycle goes on. This is an important point for us.”

Epoch has taken this approach to more than 50 countries around the world. “Two or three years ago, we started in the Middle East. I had been hesitant whether Sylvanian Families would be accepted in Middle Eastern countries, but the truth is they were very well received. Despite different religions and cultures, our toys are well accepted. The success made me confident that we can expand into more countries than we had initially thought, regardless of culture, because the toys are animals, and that will not offend anyone. Indeed, we are already distributing in Russia, and have a sales company in Brazil, but there are so many other emerging countries we have not approached yet,” says Mr. Maeda.

Nevertheless, there are many challenges still associated with Japan’s international business relations and marketing. Language barriers, government policies and a lack of market information are blocking a tsunami of Japanese entertainment culture.

International Japanese artists, like actor Ken Watanabe, believe the government needs to make better use of the entertainment sector to communicate messages and solve such problems. “The political policies and environment do not really emphasize the role of the entertainment sector,” he says. “Our job, as an entertainment sector, is also about solving problems. The government should make good use of it. We need to establish one network, a global support system.”

That said, the great allure Japan provides, such as its distinct culture, is seeing its key animation and production firms successfully take their products internationally through existing technologies like the Internet.

One of Japan’s most popular anime companies, Toei Animation Co., Ltd., which has been operating for over 60 years and is listed on the JASDAQ, has seen just that – as its President Katsuhiro Takagi explains: “Recently, partly due to the expansion of the online distribution market, a number of our products have become available to viewers not only on TV, but also on computers and smartphones.”

Although there have been other avenues to spread its products abroad, Mr. Takagi would still like to have more information on foreign markets to build interest in other demographics. “People who really like our products are called otaku. These are our fans; people who like to dress up in costumes of our most iconic characters. I would also like to see Toei Animation focus more on products that appeal to children and families. I think that there’s a market there,” he says.