



Japan Brief

Japan's Innovation Model

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♦ INTRO ♦

From a war-torn island nation to becoming the world's third-largest economy, Japan's role in the international community is critical but the road to this glorious position was not a straight path. Due to the success of its transportation and consumer electronic industry, Japan achieved remarkable growth in the second half of the 20th century. This post-war miracle continued until the early 1990s, when the Japanese asset price bubble collapsed. The country was then hit by severe economic difficulties and a steep population decline before, only very recently readapting its innovation model to give a new start to a highly innovative economy.

♦ ANALYSIS ♦

PRIVATE SECTOR. Japan's industrial giants are leading the "Fourth Industrial Revolution". The socio-economic trend known as the Fourth Industrial Revolution is a concept encompassing five elements — internet of things, artificial intelligence, big data, the sharing economy and robotics. The term was first used by the Japanese government in 2016, as an economic growth strategy. It is present in the practices and production of Japan's three major industries: transportation, consumer-electronics and robotics. Japan is internationally well-known for its significant contributions to science and modern-day technology.

Japan is the third largest producer of motor vehicles. Companies such as Toyota (world's largest automotive manufacturer and a pioneer in electric vehicle manufacturing), Honda Motor (world's largest manufacturer of motorcycles and internal combustion engines) and Nissan (world's largest electric vehicle manufacturer) have consistently produced vital transportation innovations.

Japan has the largest consumer electronics industry in the world: Japanese companies have been responsible for many important innovations, such as the transistor radio, calculator, Walkman, VHS recorder, solar cells, LCD screens, and were the first mass-producers of laptops. Famous examples of such companies are Canon, Toshiba, Fujifilm, Panasonic, Nintendo (Japan's third most-valuable company), Fujitsu (4th largest IT services provider), and Sony.

Companies from both industries are making rapid developments in robotics: the robotics industry is more important in Japan than any other country in the world, with over a quarter of a million industrial robot workers being employed in Japan (with 1 million expected in 15 years). There are different types of robots with some resembling humans (Human robots and Androids) while others look like animals (AIBO (Sony) is a series four-legged Animal robots). In a more controversial move, the industry is producing social robots that are able to interact and communicate with humans by following social behaviours (Wakamaru (Mitsubishi) and PaPeRo (NEC)). Other types of robots include guard, domestic, rescue, industrial, astronaut and mobility robots.

Altogether, Japan's three major industries are pushing the boundaries of technological innovation in the "Fourth Industrial Revolution". Japan's history of innovation and investment in robotics are good indicators that more innovation is yet to come.

PUBLIC SECTOR. Japan's public policy has been designed to resolve its steep population decline and previous 20-year economic stagnation: Government has been giving money to give birth and encouraging matchmaking events. As a result, in 2015 Japan's nationwide fertility rate hit its highest level in 21 years. The rise in young individuals is expected to favor the birth of a new, highly innovative generation. However, Japan is also prepared for the further lowering of its population with its investment in robotics, which will allow the use of a widely spread robotic workforce: Japan might be one of the first countries in the world that replaces most of its manual and bureaucratic workforce with robots.

Japan also has a strong culture of transparency with the third highest score on the availability and accessibility of public information, permitting companies to access any required data for business development. This allows for precise big data analyses of the market, as well as machine learning programmes that will constantly improve algorithmic decision-making.

INNOVATION CULTURE IN JAPAN. Much of Japan's innovation relies on its highly skilled workforce. It is among the most highly educated countries in the world. Japanese work culture prides itself on integrity, assured quality and reliable products. This is evident in company policies such as "The Toyota Way" a set of principles that underlie Toyota's managerial practices and production system. It consists of two key principles: respect for people (to improve teamwork) and continuous improvement (by establishing a long-term vision and continually innovating to go to the source of the issue or problem).

Nevertheless, Japan has a strong cultural norm of aversion to failure. The dominant norm of corporate culture is low risk, step-by-step improvement, which makes it hard for start-up-based innovation to bloom. In the past decade, Japan has undertaken significant monetary and fiscal reforms. Due to this and a generational shift in social normative changes that are becoming more supportive of entrepreneurship, Japan is experiencing a "vibrant start-up ecosystem". The tech start-ups that are rising in Japan now could design and produce tech that will reshape the way the rest of the world lives.

♦ CONCLUSION ♦

Japan's innovation model sets an example for how a large investment in technological innovation improves the economy, life-quality and global influence. The success of Japan's pro-natal policies can serve as an example for countries in east Europe, which are also experiencing steep population declines. But most importantly, the advances Japanese companies are making in robotics, and other fields of technological innovation, will have a significant and long-lasting influence on the way the entire world lives and works.