



# Selling Robots in Japan

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August 2016

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### Japan's "Robot Revolution"

Japan is the world's second largest consumer of industrial robots, and in 2014, had the highest "robot density" with 1,414 robots for every 10,000 employees in the auto industry. This means that in Japanese car factories, there were only seven human beings to every robot on the assembly line.

Coupled with Japan's heavy use of industrial robots is a generally positive view of robotics and its potential in the Japanese public. In part, Japanese interest in robots has created the opportunity for vending machines to flourish at 1 for every 23 people in Japan. As a result, while the U.S. tends to invest in robotic weaponry for military use, Japan's R&D is generally geared towards consumer goods.

Attitudes toward robotic development are so positive that the Japanese government has even turned to robots as a possible productivity boost and solution to labor shortages. As part of the "third arrow" of Prime Minister Abe's strategy to reverse Japan's economic stagnation, he has called for Japan's "Robot Revolution." In 2014, the prime minister appointed corporate leaders to a Robot Revolution Revitalization Council to "spread the use of robotics from large-scale factories to every corner of our economy and society," and has set up funding initiatives to encourage innovation in eldercare technology, driverless cars, and IoT. The Abe administration has also announced a "Robot Olympics" alongside Tokyo 2020, to give visibility to Japan as the new robotics hub of the world.

Amid Japanese Robomania, American robotics companies have market opportunity but face stiff competition from domestic firms with established advantages. In 2011, Japan exported 72,574 robots and imported only 734. The same year, the U.S. was the fifth largest exporter of robots to Japan, with 8.5% of the market share. This was before "Abenomics" began to push for domestic robotics industry growth. Below I will discuss Japanese market dynamics fundamental to U.S. companies planning a market entry strategy, key markets opportunities in robotics, and define the takeaways from iRobot's success with the "Roomba" in Japan's autonomous robotic vacuum market.

## Understanding Japan's Robotic Culture: At the Forefront of Service Robots



Pictured above is the world's first "Robot Hotel" in Nagasaki. Human staff merely provide security for the robots—everything from the robotic velociraptor receptionist to facial recognition software in lieu of key cards allow for a completely automatized hotel experience. This example aptly represents Japanese attitudes and hopes for Abe's "Robot Revolution" in number of ways. The Henn-na Hotel (roughly translates to "Strange" Hotel) was built to be cost-effective above offering a novel experience. The hotel is priced at a reasonable ¥9,000 (\$89 at Aug. 2016 rate). In general, Japanese consumers are fascinated with robots but increasingly look to them as answers to rising costs and increasing labor shortages. Perhaps more importantly, the hotel represents Japan's effort to establish itself as the world's center for robotics: the hotel is part of the 400 acre Huis Ten Bosch theme park geared towards tourists. Japan is arguably the most accepting of service robotics of any nation in the world, and is determined to establish itself as the standard for the industry. As discussed below, market evidence also suggests that Japan will remain a huge consumer for this market.

### Essential Characteristics of the Japanese Market

Another part of Prime Minister Abe's third arrow has been labeled "womenomics." As a result of increased public daycares and new gender equality laws for medium and large companies, 65% of all women now participate in the Japanese work force. The most successful American robotics companies in Japan have introduced products that ease this transition, or have been useful in addressing Japan's rapidly aging population. As of 2015, 26% of the Japanese population was over the age of 65. Merrill-Lynch has published a report that the caregiving robot industry will reach a \$17.4 billion value by 2020, to meet a projected one million human caregiver deficit at that time. American companies looking to export service robots to Japan are well-served by addressing one of these two changes in Japanese society.

Still, industrial robotics is by far the largest robotics market in Japan. In 2012, 75% of the robots sold in Japan went to the manufacturing industry. Both METI and the International Federation of Robots project continued growth to double the market size in the manufacturing industry for the two decades, with steady increases in the already-prominent car manufacturing sector, and an uptick in growth for the electronics manufacturing sector. Manufacturing is predicted to continue to dominate the Japanese robotics market until about 2025, when the service-sector robotics market, such as the

elder-care robots discussed above, are predicted to overtake the manufacturing industry in robot consumption.

### **Key Market Opportunities**

METI (Japan's Ministry of Economy, Trade, and Industry) has released figures projecting market growth in certain sectors of the Japanese robotics industry for the next 20 years. Here are some important figures to note:

- Personal mobility robots are predicted to experience the most pronounced market growth in the next two decades. The Japanese market for personal mobility robots is currently at \$1.6 billion (at 2015's average dollar/yen exchange rate) and is predicted to grow in to a \$7.7 billion market by 2035.
- The market for robotic vehicles and railways is predicted grow particularly in Japan. This prediction aligns well with current statistics about Japanese transportation patterns—Tokyo currently possesses the most heavily used public transport system of any city on earth, with residents taking an average of almost one trip a day. Robotic solutions to the Japanese labor shortage in the face of huge public transport demand have good chances of faring well in the market. Already, the Japanese government has invested in an effort to bring “Robot Taxis” to the 2020 Olympics. In the long-term, these driverless taxis are supposed to reduce the cost of transportation in rural areas.
- In 20 years, the market for robotic home goods is supposed grow to seven times its current size. Currently, most products in this market are priced too high to have much viability. The special case of the autonomous robotic vacuum cleaner market is discussed below.

### **Case Study: Autonomous Robotic Vacuum Cleaners**

American company iRobot currently holds 80% of Japan's robotic vacuum market. It is important to note that iRobot's best-selling product, the “Roomba,” meets both the needs of Japan's elderly population, and families where women are entering the workforce. Perhaps the most important learning point from iRobot's success is that they were careful to customize their product to the Japanese market. From its debut, iRobot sold special versions of their Roomba with Hello Kitty designs exclusive to Japan, where presentation is highly valuable to consumers. In the later versions of their products, Roomba responded to customer feedback with new tatami-floor capabilities and a better filtration system. They also chose a wise a price point for their products—usually around \$350 USD. The average Japanese gross annual income is under \$30,000 a year, explaining the obstacle faced by more pricey competitors.

### **Conclusion**

Japan's strong interest and faith in robotics presents both an opportunity and a challenge to U.S. companies looking to export. Japanese consumers are receptive of robotic technology but particular about the presentation, functionality, and price points of their products. American companies

planning a market entry strategy for Japan should consider marketing to recent societal changes and making particular customizations for its Japan venture.

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