

Stratasys Japan Co., Ltd.

Stratasys Ltd., the world's largest 3D printer manufacturer, set up a company in Japan in 2012. The company offers a wide range of 3D printers from large, high-performance printers for industrial use to 'prosumer' printers. It is now five years since Stratasys started business in Japan. Hiroaki Katayama, President and CEO of Stratasys Japan, talks about Stratasys's business expansion and future plans in Japan.

Stratasys was founded in the US state of Minnesota in 1989. After the merger with Objet, a leading company in the same industry in Israel in 2012, the Japanese subsidiary of Objet changed its name to Stratasys Japan in July 2012. Stratasys is now leading the 3D printer market as the world's largest 3D printer manufacturer. The company's decision to enter the Japanese market was not only because Japan was Stratasys' second largest market after the United States, but also because they reasoned the market would allow them to grow through collaboration with Japanese companies. In Asia, the Chinese 3D printer market has been expanding rapidly in recent years and gaining significance. However, Stratasys believes that Japan continues to be the most important country in the region.



Transition from prototyping to manufacturing

Stratasys' sales figures by country show that the US tops the ranking, followed by Japan, Germany, China, and the United Kingdom. These 5 countries account for 70% of the company's global sales. In Japan, 3D printers have been attracting attention for the past few years, but the 'initial excitement' has calmed since around 2016. Nevertheless, interests in industrial applications of 3D printing are growing

gradually but surely. Japanese manufacturers, who are said to be conservative in adopting new technologies, have purchased large 3D printers, or are using contract manufacturing services, seeking ways to use the technology effectively.

Keeping pace with fast-growing 3D printer markets in the world, Stratasys has steadily increased its sales. The global 3D printer market, however, grew just 17.4% in 2016, down from 25.9% in 2015. Much of the downturn came from declines in sales at Stratasys and 3D Systems, the two industry giants, which together account for 21.7% of the industry's \$6 billion global market.

Although Stratasys Japan's sales have been flat since 2016, President Katayama remains positive. "The reason for the flat sales is that 3D printers are in a transitional stage toward being used for direct digital manufacturing (DDM). 3D printers have mainly been used to make prototypes in the manufacturing industry so far, but now they have started to be used to create jigs and parts for product manufacturing or end products. If this trend continues, they will eventually be used for mass production, resulting in a spike in the use of 3D printing," he explains.



Further expansion through collaboration with Japanese companies

Stratasys recently transferred a member of the R&D group in Israel to Japan for two main objectives. One is to collect requests from existing users in Japan to make proposals to the US and Israeli headquarters on improving the 3D printing technology. The other is to evaluate Japanese companies' technologies. Since the arrival of the staff member, negotiations on technical partnerships with several major Japanese companies have been underway. Fields for collaboration range widely from sensors and LEDs to materials and energy-conservation. Stratasys is considering establishing an R&D center in Japan in the near future to further promote these activities.

The president expresses his hope, saying: "Stratasys has been collaborating with overseas companies such as Siemens, Ford, Boeing and McLaren but is also hoping to jointly develop products with Japanese companies, who are inherently very cooperative and keen on creating new value for society through joint projects. We want to team up with such companies."

For greater use of 3D printers

Stratasys has been strengthening its cooperation with "fab spaces" (fabrication facilities), which help people build their own products, and educational institutions to raise awareness and knowledge of 3D printers in Japan. Several universities, including Nihon University and Tama Art University, are already in partnership with the company, having introduced 3D printers into the classroom. Stratasys aims to expose students to the potential of 3D printing while they are still young, and expects that they will take advantage of 3D printers when they become engineers. The company also hopes that the students themselves will become a driving force for

creating new 3D applications and services.

Mr. Katayama says: "New entries by various companies into the 3D printing market are most welcome, regardless of whether they are Japanese or from overseas." In 2016, General Electric (GE) acquired multiple 3D printer manufacturers. GE's announcement of producing 10,000 3D printers over the next 10 years reverberated throughout the industry. Even in such circumstances, "it is essential to expand the 3D printer market. The number of 3D printer manufacturers has to increase to the point where they are as numerous as press or injection molding machine manufacturers. The era of wide use of 3D printers should come soon," he adds. According to the Wohlers Report 2017 published by Wohlers Associates, Inc., a research company specialized in 3D printing, 62 companies were manufacturing 3D printers for industrial use in 2015, but the number had increased to 97 by 2017. Although they form a \$6 billion 3D printer market, it accounts for only 0.05% of the global manufacturing industry. The report forecasts that the market will reach about \$26.2 billion by 2022, but this will not be achieved without new entrants.

Stratasys sees that in addition to automotive and aerospace industries where 3D printing technology is currently most used, 3D printer markets in the medical, dental, art and entertainment fields have significant capacity for expansion.



3D printers are essential for living in the universe

3D printers are now used even in remote areas with logistical challenges, such as in Africa and onboard ships. The most extreme example would be use in space. 3D printers are already installed in the International Space Station.

“In science fiction movies, we see people living on Mars and their houses look as if they are made of metal. But in fact, it is not realistic to send building materials and parts by spacecraft from Earth. We have to make them with what exists in space. Currently, China and Russia, not to mention NASA, are conducting research on 3D printers that can produce parts with materials available in space,” explains Mr. Katayama.

The obstacle is the mindset

While Japan has wonderful traditions, technology and pride regarding monozukuri (craftsmanship), it also has a “culture of suspicion toward new technology.” Japanese engineers are overly cautious when integrating new technologies and fear that they may fail if they don’t use familiar tools. Changing this mentality is challenging and time-consuming process.

Meanwhile, US companies are willing to try new things and to identify where and when to use them and for which products. For instance, the vice president of the US company Caterpillar led the company himself in collecting and analyzing comprehensive data on the costs, time required and product safety for a scenario in which they make all their spare machine parts by 3D printers. If top management of Japanese

companies were to give similar policies on applications of 3D printing to their employees, it could change the current situation where each department individually conducts performance tests, which is expensive and time-consuming. This would also enable engineers to experiment without risk of being criticized as the executives would take responsibility.



Developing a long-term relationship with JETRO

Stratasys has been receiving detailed information on the Japanese government’s subsidies for R&D and IoT from JETRO for their business expansion in Japan. The company has also been taking advantage of support from JETRO such as the provision of information on potential partners. Stratasys plans to seek further help from JETRO for their future developments in Japan, especially for establishment of their R&D facility.

(Interviewed in June 2017)

Corporate history

1989	Establishment of Stratasys Ltd. in Minnesota, the US
2012	Merger with Objet, an Israeli 3D printer manufacturer, and start of business with corporate headquarters in

both Israel and the US
Change of Objet Japan's name to Stratasys Japan
2013 Acquisition of MakerBot, a desktop 3D printer manufacturer

Stratasys Japan Co., Ltd.

Establishment: 2012
Business: Production and sales of 3D printers
Parent Company Stratasys Ltd.
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Support from JETRO

- Provision of information on incentives
- Consultation on establishing a corporation in Japan