

Global industrial robot sales doubled over the past five years – IFR reports

- Outlook 2021: Global sales to increase +14 percent per year on average
- Japan: highest number of robots produced
- Europe: highest robot density
- China: strongest demand, highest sales volume

Tokyo, October 18th, 2018 – The new **World Robotics Report by the International Federation of Robotics (IFR)** shows that a new record high of **381,000 units** were shipped globally in **2017** – an increase of **30 percent** compared to the previous year. This means that the annual sales volume of industrial robots increased by **114 percent** over the last five years (2013-2017). The sales value increased by **21 percent** compared to 2016 to a new peak of **US\$16.2 billion** in 2017.

“Industrial robots are a crucial part of the progress of manufacturing industry,” says Junji Tsuda, President of the International Federation of Robotics. “Robots evolve with many cutting-edge technologies. They are vision recognition, skill learning, failure prediction utilizing AI, new concept of man-machine-collaboration plus easy programming and so on. They will help improve productivity of manufacturing and expand the field of robot application. The IFR outlook shows that in 2021 the annual number of robots supplied to factories around the world will reach about 630,000 units.”

Top five markets in the world

There are five major markets representing 73 percent of the total sales volume in 2017: China, Japan, South Korea, the United States and Germany.

China has significantly expanded its leading position with the strongest demand and a market share of 36 percent of the total supply in 2017. With sales of about 138,000 industrial robots (2016-2017: +59 percent) China’s sales volume was higher than the total sales volume of Europe and the Americas combined (112,400 units).

Foreign robot suppliers increased their sales by 72 percent to 103,200 units, including robots produced locally by international robot suppliers in China. This is the first time that foreign robot suppliers have a higher growth rate than the local manufacturers. The market share of the Chinese robot suppliers decreased from 31 percent in 2016 to 25 percent in 2017.

Japan's manufacturers delivered 56 percent of the global supply in 2017. This makes Japan the world's number one industrial robot manufacturer. The export rate increased by 45 percent (2016-2017). North America, China, the Republic of Korea, and Europe were target export destinations. Robot sales in Japan increased by 18 percent to 45,566 units, representing the second highest value ever witnessed for this country. A higher value was only recorded in the year 2000 with 46,986 units.

The manufacturing industry of the **Republic of Korea** has by far the highest robot density in the world – more than 8 times the global average amount. But in 2017, robot supplies decreased by 4 percent to 39,732 units. The main driver of this development was the electrical/electronics industry that reduced robot installations by 18 percent in 2017. The year before, industrial robot installations peaked at 41,373 units.

Robot installations in the **United States** continued to increase to a new peak in 2017 – for the seventh year in a row - and reached 33,192 units. This is 6 percent higher than in 2016. Since 2010, the driver of the growth in all manufacturing industries in the U.S. has been the ongoing trend to automate production in order to strengthen the U.S. industries in both domestic and global markets.

Germany is the fifth largest robot market in the world and number one in Europe. In 2017, the number of robots sold increased by 7 percent to 21,404 units - a new all-time record - compared to 2016 (20,074 units). Between 2014 and 2016, annual sales of industrial robots stagnated at around 20,000 units.

Robot use by industry worldwide

The automotive industry remains the largest adopter of robots globally with a share of 33 percent of the total supply in 2017 - sales increased by 22 percent. The manufacturing of passenger cars has become increasingly complex over the past ten years: a substantial proportion of the production processes nowadays require automation solutions using robots. Manufacturers of hybrid and electric cars are experiencing stronger demand for a wider variety of car models just like the traditional car manufacturers. Furthermore, the challenge of meeting 2030 climate targets will finally require a larger proportion of new cars to be low- and zero-emission vehicles.

In the future, automotive manufacturers will also invest in collaborative applications for final assembly and finishing tasks. Second tier automotive part suppliers, a large number of which are SMEs, are slower to automate fully but we can expect this to change as robots become smaller, more adaptable, easier to program, and less capital-intensive.

The **electrical/electronics industry** has been catching up with the auto industry: Sales increased by 33 percent to a new peak of 121,300 units - accounting for a share of 32 percent of the total supply in 2017. The rising demand for electronic products and the increasing need for batteries, chips, and displays were driving factors for the boost in sales. The need to automate production increases demand: robots can handle very small parts at high speeds, with very high degrees of precision, enabling electronics manufacturers to ensure quality whilst optimising production costs. The expanding range of smart end-effectors and vision technologies extends the range of tasks that robots can perform in the manufacture of electronic products.

The **metal industry** (including industrial machinery, metal products and basic metals industries) is on an upswing. Share of total supply reached 10 percent with an exceptional sales growth of

55 percent in 2017. Analysts predict an overall growth in demand in 2018 for metals, with ongoing high demand for the cobalt and lithium used in electric car batteries. Large metal and metal product companies are implementing Industry 4.0 automation strategies, including robotics, to reap the benefits of economies of scale and to be able to respond quickly to changes in demand.

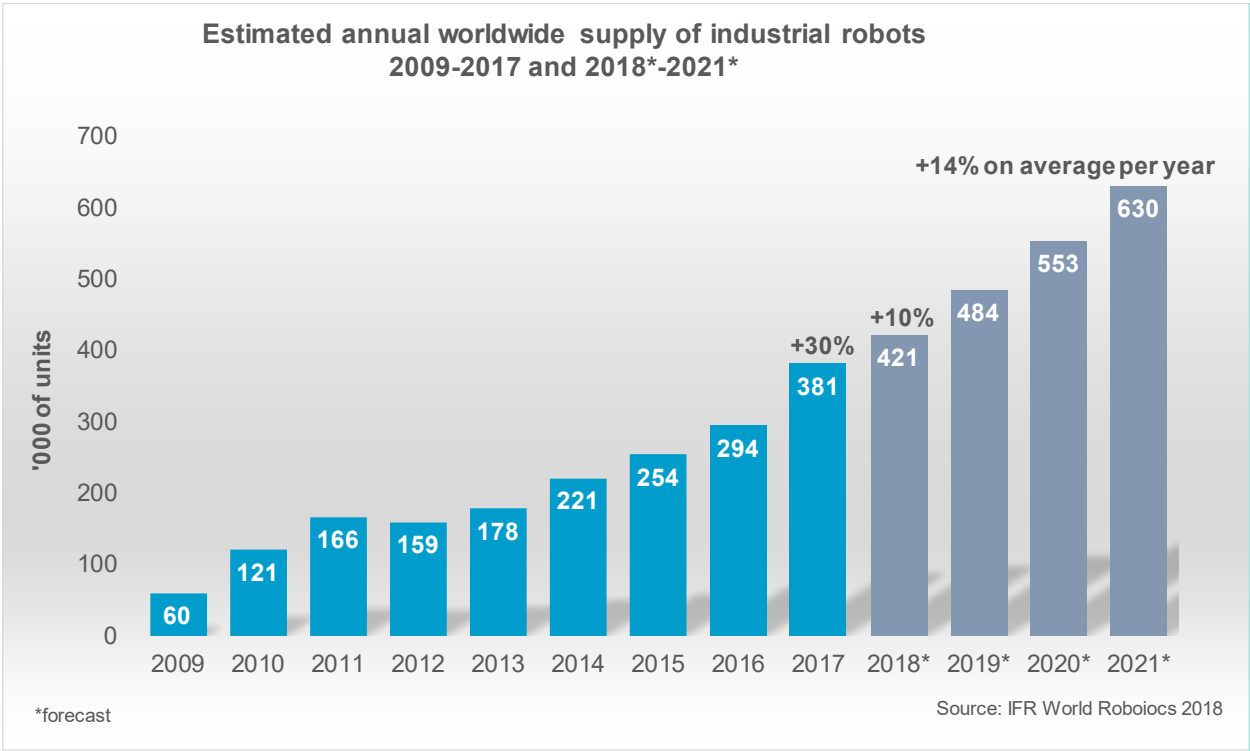
Automation degree by robot density

85 robot units per 10,000 employees is the new average of global robot density in the manufacturing industries (2016: 74 units). By regions, the average robot density in Europe is 106 units, in the Americas 91, and in Asia 75 units.

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<https://ifr.org/ifr-press-releases/news/global-industrial-robot-sales-doubled-over-the-past-five-years>



Global industrial robot sales doubled within five years (2013-2017)

About IFR

The International Federation of Robotics: www.ifr.org

The IFR Statistical Department publishes two robotics studies each year:

World Robotics - Industrial Robots: This unique report provides global statistics on industrial robots in standardized tables and enables national comparisons to be made. It contains statistical data from around 40 countries broken down into areas of application, industrial sectors, types of robots and other technical and economic aspects. Production, export and import data is listed for selected countries. It also describes the trends in relation to robot density, e.g. the number of robots per 10,000 employees in relevant sectors.

World Robotics - Service Robots: This unique report provides global statistics on service robots, market analyses, case studies and international research strategies on service robots. The study is jointly prepared with our partner Fraunhofer IPA, Stuttgart.

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