

# ROBOTICS

## Global Market Size/Forecast

➤ **(GLOBAL ROBOTICS MARKET)** The global robotics market is estimated to be approximately USD 46 billion in 2023.

- Of this, service robots account for about USD 35 billion (77%), while industrial robots account for 23%, totaling USD 11 billion.
- By revenue, the United States leads with USD 9 billion, followed by China at approximately USD 8 billion. (Source: Statista Market Insights 2024)

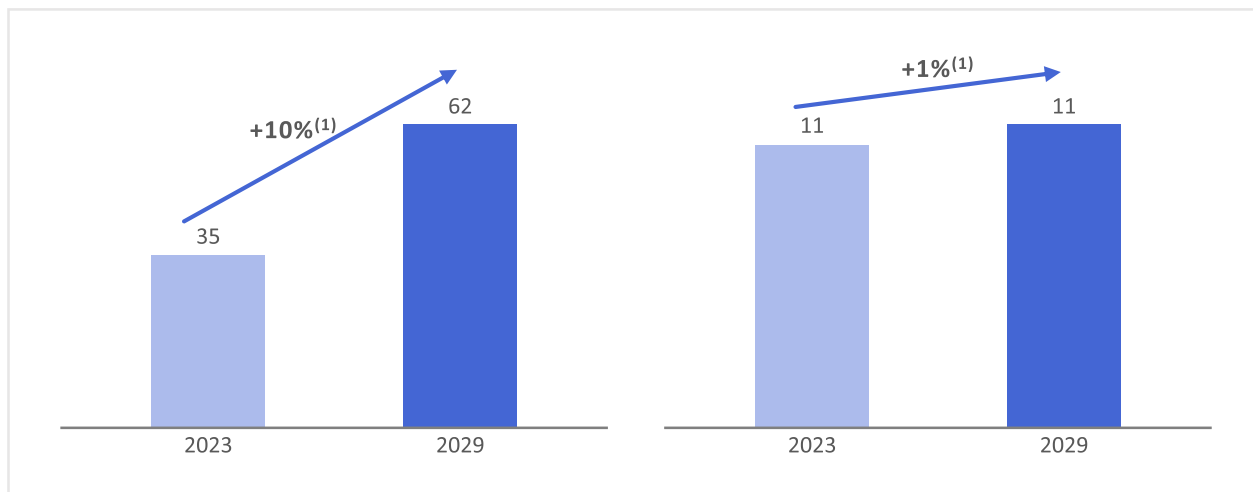
➤ **(INDUSTRIAL ROBOTS)** The global industrial robot market size (by number of units installed) in 2023 is 540,000 units, a 2% decrease from 550,000 units in 2022. However, the market continues to show strong growth, surpassing 500,000 units for three consecutive years.

- The global inventory has also increased by 10% compared to the previous year, reaching about 4.3 million units, indicating a sustained rise in new demand. (Source: IFR 2024 World Robotics)

➤ **(SERVICE ROBOTS)** The global service robot market is expected to grow at an average annual rate of around 10% until 2029.

\* In contrast, industrial robots are expected to grow at an average annual rate of around 1% during the same period. (Source: Statista Market Insights 2024)

<Global Robotics Market Forecast by Revenue: Service vs. Industrial Robots (Unit: Billion USD)>



\* Source: Statista Market Insights 2024

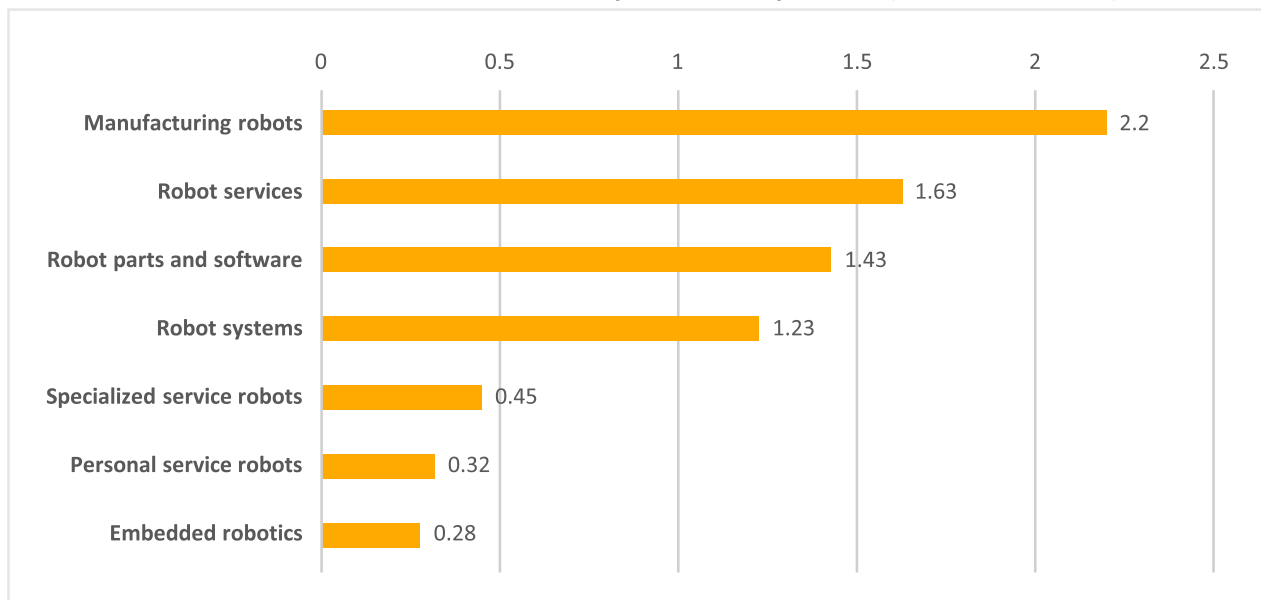
## Domestic Market Size/Forecast

📌 **(DOMESTIC MARKET)** In 2023, South Korea's total robotics market revenue is approximately USD 7.6 billion.

- By revenue, industrial robots lead with USD 2.2 billion, followed by service robots with USD 1.6 billion and components/software with USD 1.4 billion.
- The number of new industrial robots installed in South Korea decreased from around 41,000 units in 2016 to 31,000 units by 2020, and has since remained at that level.
- In 2023, South Korea's share of the global industrial robot market was 5.7%, ranking 4th in the world after the United States.
- For service robots in 2023, the revenue from professional service robots (e.g., medical, logistics) was about USD 450 million, and from personal service robots (e.g., cleaning, guidance) was about USD 320 million.

\* Service robots make up about 10% of South Korea's robotics market, but if ancillary revenue like robot services are considered, they are expected to account for about 20%. (Source: 2024 South Korea Robotics Industry Survey)

<2023 South Korea Robotics Industry Revenue by Sector (Unit: Billion USD)>



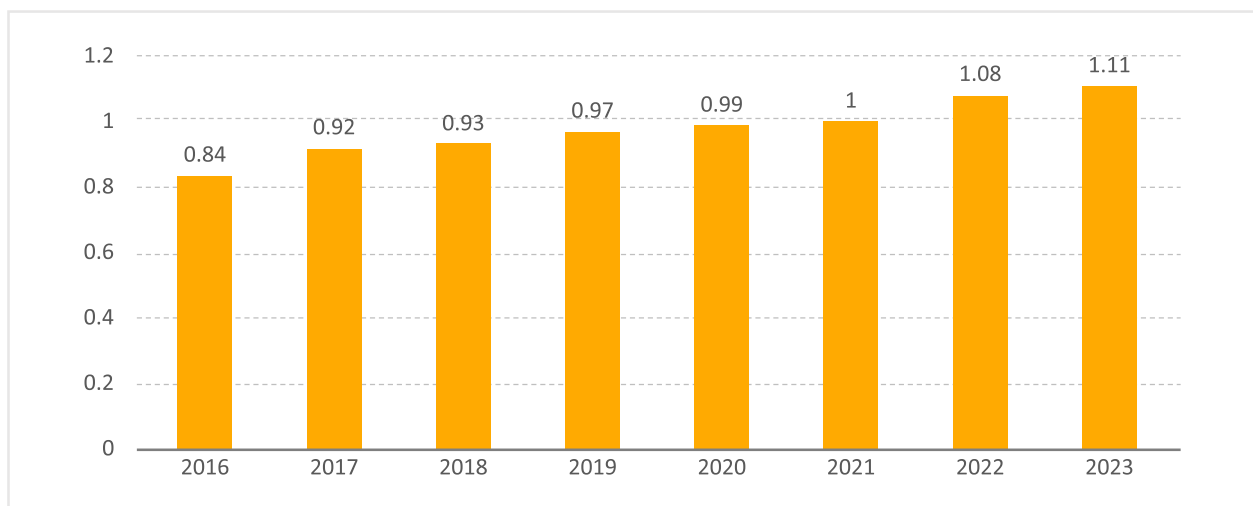
\* Source: Statista Market Insights 2024

## Sales/Exports/Production Volume

➤ **(ROBOT EXPORTS AND IMPORTS)** In 2023, South Korea's robot exports amounted to approximately USD 1.1 billion, showing an annual growth rate of around 3% since 2016.

- In contrast, robot imports in 2023 were USD 480 million, maintaining a stable level over the past five years.

<South Korea's Robot Export Trends (Unit: Billion USD)>

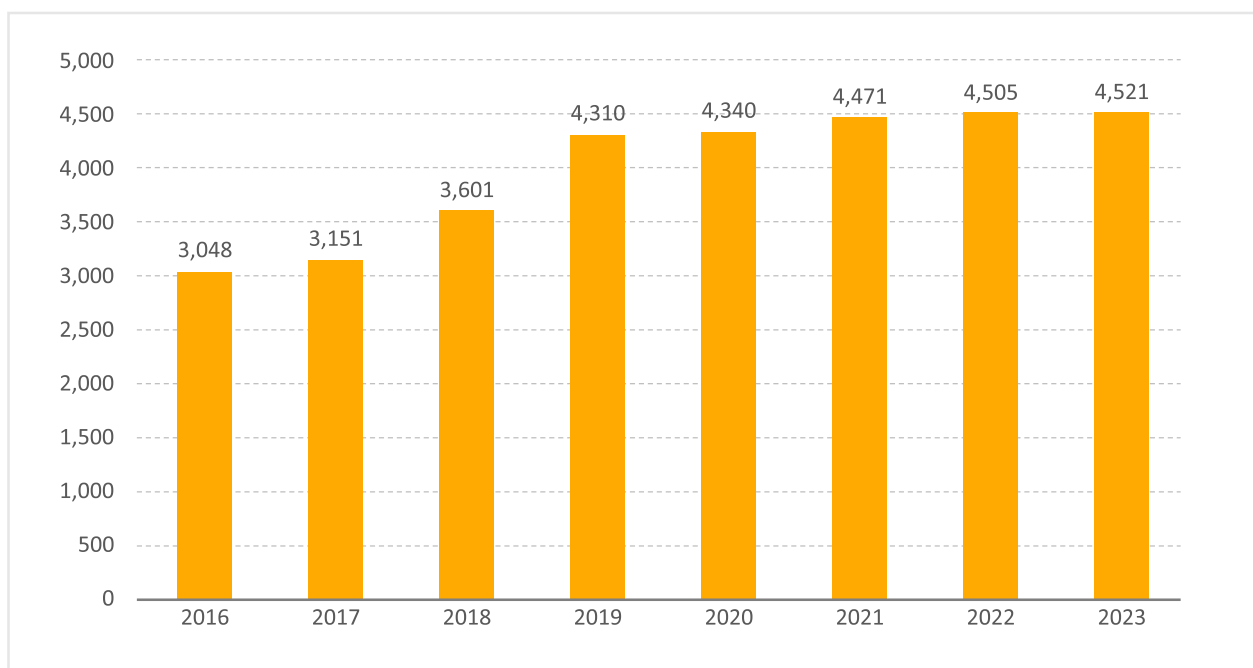


\* Source: 2024 South Korea Robotics Industry Survey

➤ **(NUMBER OF ROBOTICS COMPANIES)** As of 2023, there are approximately 4,500 robotics companies in South Korea, maintaining a steady number over the past five years.

- Large companies such as Hyundai and Doosan dominate the domestic industrial robot market, while service robots are produced primarily by specialized companies in fields such as healthcare and consumer electronics.

<Number of Robotics Companies in South Korea (Unit: Companies)>








\* Source: 2024 South Korea Robotics Industry Survey

## Investment Strengths

- ▶ **(UPSTREAM INDUSTRIES)** South Korea's robotics industry is robust due to strong demand from the manufacturing sector.
  - The country has infrastructure in manufacturing industries such as automotive, electronics, semiconductors, and shipbuilding, materials and parts, precision processing, which supports significant demand for industrial robots.
  - Since 2015, more than 30,000 industrial robots have been installed annually, with South Korea holding the top position in robot density in manufacturing.
- ▶ **(TECHNOLOGY DEMAND)** There is a low domestic localization rate for key components and technologies required for robot operation, which increases demand for collaboration with leading foreign companies.
  - The domestic technology self-sufficiency rate for robotics in South Korea is only 44%, particularly in key components such as controllers, sensors, software, and drives.
  - Core components such as drives and control technologies are still largely imported, leading to a strong demand for partnerships and cooperation with leading foreign companies in the short term.
- ▶ **(CORPORATE TRENDS)** Recently, major telecommunications and IT companies in South Korea are entering the robotics sector by leveraging AI, IoT, and automation technologies, increasing the potential for collaboration with foreign companies.

### <Trends of Major Korean Companies in the Robotics Sector>

	Unveiled the robot platform 'Robot Makers' at MWC 2023
	Introduced the robot platform 'AirPath' at MWC 2023 and is participating in the development of autonomous patrol robots, progressing toward robot commercialization
	Developing delivery service robots and AI-based robots that combine AI and robotics technologies
	Commercializing the 'U+ Serving Robot (CLOi)' service in collaboration with LG Electronics
	Naver Labs developed the robot control system 'ARC' (AI+Robot+Cloud) and is operating a robot-exclusive elevator at its second building for demonstration purpose



## Cluster Status

- ❏ In March 2023, the government formulated the "Second Phase Regional Innovation Cluster Development Plan (~2027)" through the Presidential Committee for Balanced National Development. This plan designates specialized industries to be developed in regional innovation clusters across various cities and provinces starting in 2023.

### <Representative Institutions by Region in Robotics Industry>

Region	Name of Entity	Robot Team	Main Functions and Roles
Busan	Korea Institute of Industrial Technology	Marine Robot Center	Support for the growth of the local robotics industry and the development of robotics companies by supporting marine robot R&D and testing centers
	Korea Institute of Robotics & Technology Convergence	URI_Lab. Busan	Support for nurturing robotics companies through robot convergence, R&D of core technologies, and commercialization
Daegu	Daegu Mechatronics & Materials Institute	Mechatronics and Robot Research	Development of robotics industry policies, establishment of infrastructure, technology development, performance evaluation of parts/modules/products, and business support in Daegu
Incheon	Incheon TP	Robot Industry Center	Dedicated support for the growth of the robotics industry in Incheon, including enterprise support, infrastructure development, and operation
Gwangju	Gwangju TP	Industrial Technology Center	Support for the growth of the robotics industry in the Gwangju region
Daejeon	Daejeon TP	Intelligent Robot Center	Planning and implementation of projects in the robotics/intelligent machinery industry, drones, and defense sectors, as well as supporting related technologies and marketing to activate the industrial ecosystem
Gyeonggi	Gyeonggi Business & Science Accelerator	4th Industry Future Technology Team	Promotion of the robotics industry in Gyeonggi Province through robot demonstration and marketing support
Gyeonggi Bucheon	Bucheon Industry Promotion Agency	Industrial Growth Robot Convergence Team	Operating R&D, research equipment, education, marketing, and network support programs for the growth of the robotics industry in Bucheon and Gyeonggi Province
Gangwon	Gangwon Information & Multimedia Corporation	Management Planning HQ Museum Management Team	Robot experience and exhibition, management of the toy robot hall
Gyeongbuk	Korea Institute of Robotics & Technology Convergence	Future Strategic Business Team	Commercialization of robot technology and support for standardization/testing
Gyeongnam	Gyeongnam TP	Intelligent Machine HQ	Creation of a robotics industry ecosystem leading advanced manufacturing technologies

## Industry Development Policies

▶ **(DOMESTIC INDUSTRIAL POLICY)** In December 2023, the MOTIE held the Advanced Robotics Industry Strategy Meeting and announced following three major strategies:(Source: MOTIE)

① By 2030, the government and private sector will jointly invest over KRW 3 trillion to enhance technological, workforce, and corporate competitiveness, aiming to secure 8 core technologies\*

\* (5 hardware technologies): Reducers, servomotors, grippers, sensors, controllers / (3 software technologies): Autonomous operation, autonomous mobility, interaction

② By 2030, the goal is to deploy over 1 million robots across all industries.

\* Deployment goals: Industrial use (680,000 units), Social use (e.g., defense, healthcare) (320,000 units)

③ Establish a legal support foundation through the revision of the "Act on Intelligent Robot Development and Distribution Promotion" and promote practical and immediate regulatory improvements through inter-ministerial coordination.

## Key Examples

### #1

▶ Company K, a global manufacturer in the industrial robot, parts, and autonomous mobile robot sectors, was established in Germany in 1898. With 14,000 employees, the company is currently investing about USD 6 million to establish a new application center in South Korea to develop customized robot design features for industries such as semiconductors, electronics, and healthcare. Upon completion of this investment, the company will be able to provide optimized solutions tailored to domestic customer requirements, which is expected to contribute to enhancing the competitiveness of South Korea's manufacturing industry.

### #2

▶ The domestic startup "T" is a developer of systems/software used for checking defect rates in manufacturing processes. The company has attracted early-stage (Series A) investment from Nvidia, a global AI leader, from October 2023 to June 2024. This marks Nvidia's first investment in a Korean startup.