

# R&D Investment Among Robot-Dense Countries

Spending on robotics research among the most automated manufacturing countries during 2022 showed a wide range of approaches to furthering growth in automation innovation.

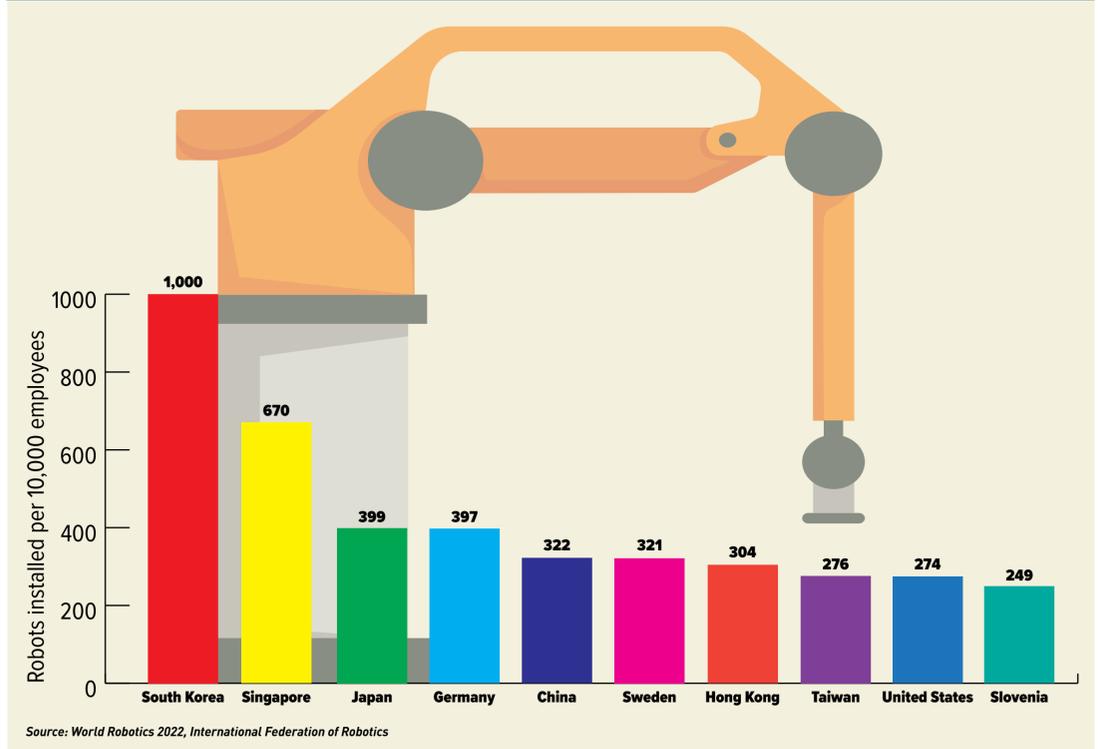
BY LOUISE POIRIER

Investments, diversification, and establishment of new robot technologies “has become larger than before, and the application spectrum of such R&D on robotics is now broader,” according to “World Robotics R&D Programs,” from the International Federation of Robotics (IFR).

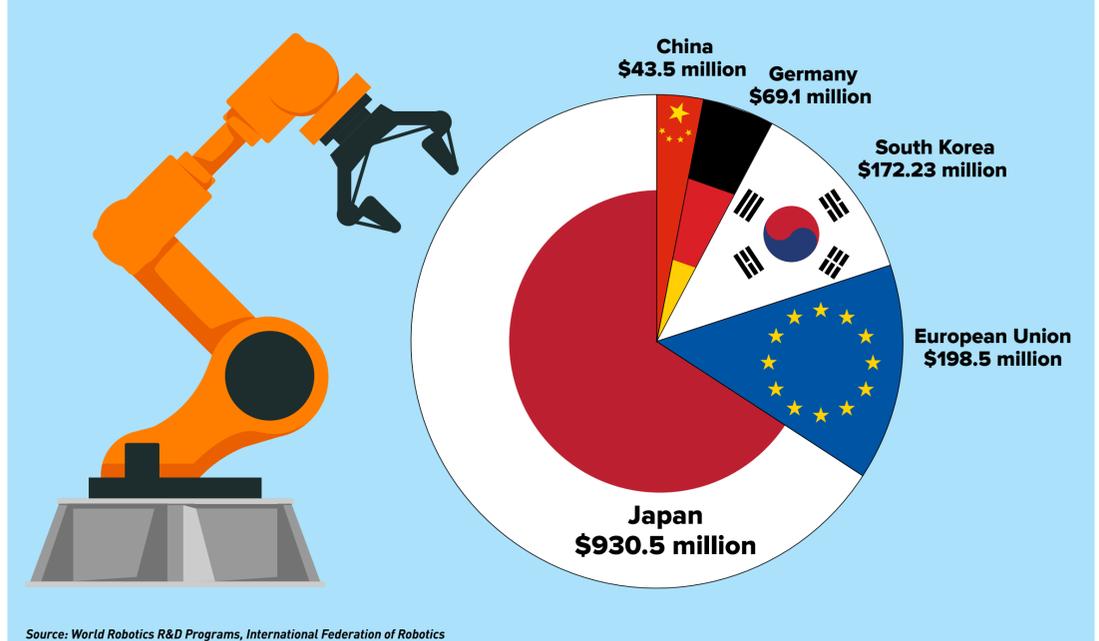
The most robot-dense countries are in Asia, driven by a high volume of robot installations in recent years, according to IFR. From 2016 to 2021, Asia’s average robot density grew by 18% compound annual growth rate (CAGR) to 156 units per 10,000 employees, while European robot density grew by 8% CAGR to 129 units, and across the Americas, robot density grew by 8% CAGR to 117 robots, IFR reported.

“Robot density is a key indicator of automation adoption in the manufacturing industry around the world,” said Marina Bill, president of IFR. “The new average of global robot density in the manufacturing industry surged to 141 robots per 10,000 employees—more than double the number six years ago.”

## ROBOT DENSITY IN THE MANUFACTURING INDUSTRY 2022



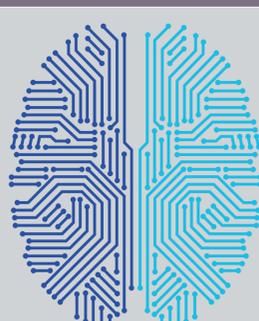
## ROBOTICS R&D INVESTMENT AMONG ROBOT-DENSE COUNTRIES IN 2022 (USD)



## U.S. ROBOTICS R&D INVESTMENTS

Numerous funding sources directed toward robotics and autonomous systems exist in the United States, with major investment centering on NASA and Department of Defense programs.

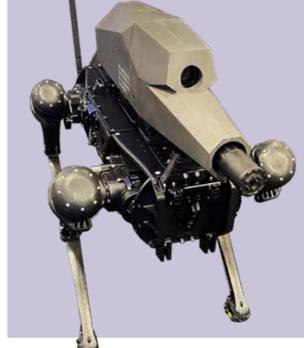
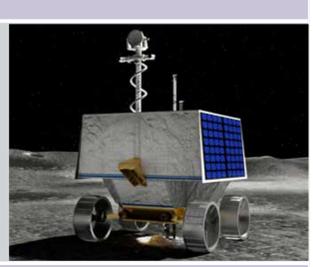
Approximately \$260 million (4% of the U.S. government’s \$6.5 billion FY 2021 budget) went toward Intelligent Robotics and Autonomous Systems (IRAS), a program that looks to advance intelligent robotic systems.



The National Robotics Initiative (NRI) is an IRAS program, which supported fundamental robotics R&D since its inception in 2011. NRI-3.0 kicked off in February 2021, receiving \$14 million in government funding for the year.

NRI-3.0’s website shows that active funding went to 185 projects across the United States, totaling \$124.98 million, over the program’s lifetime. NRI has ended with this latest iteration after 12 years.

A major recipient of government funding continues to be NASA. The Artemis lunar program budget for 2020-2024 is \$35 billion.



Taking the largest share of government investment is the Department of Defense. The FY 2022 budget for unmanned systems and robotics is \$8.2 billion, up 8% from FY 2021’s budget of \$7.54 billion.