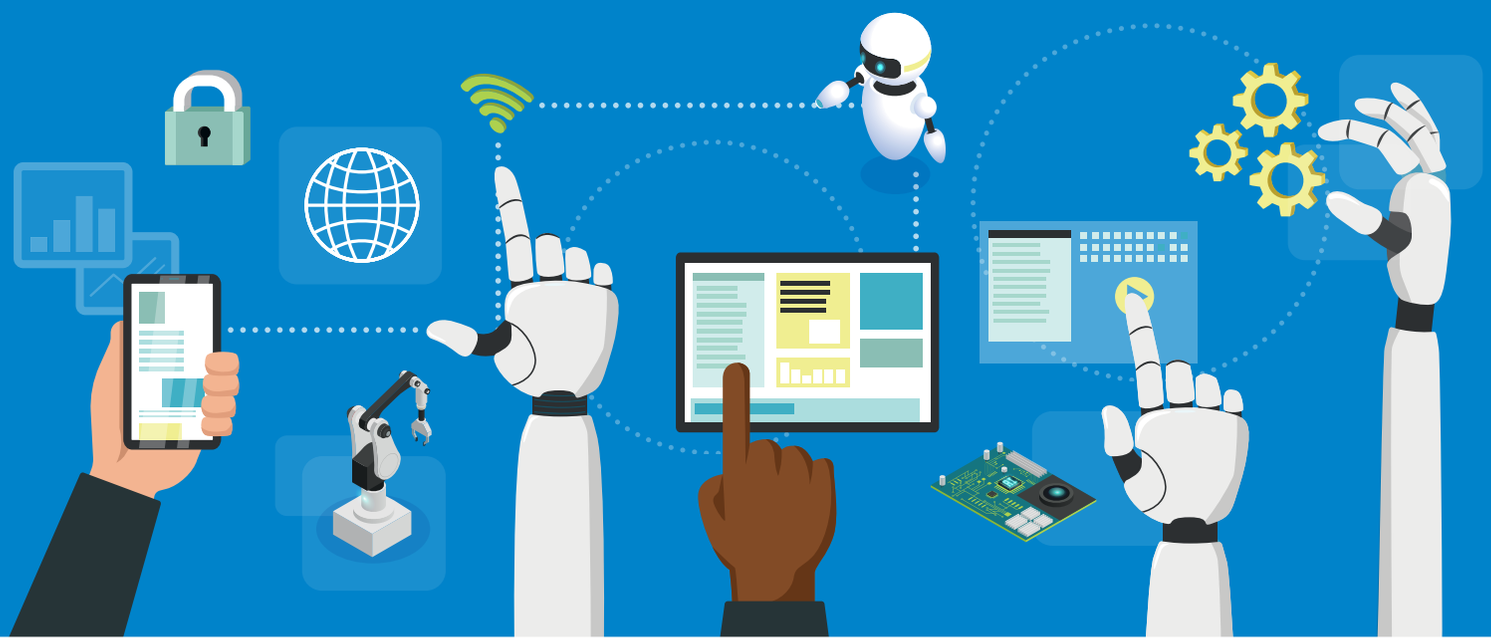
AXA Investment Managers

The robot revolution has arrived. Here's what investors need to know.

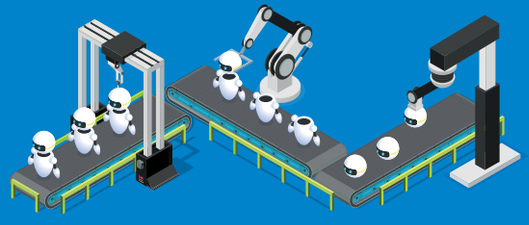
The field of robotics isn't new, but the rapid advancement of our technological capabilities, paired with an economic landscape ripe for automation, is encouraging unprecedented growth. Today's robots are poised to transform countless potential industries, meaning investors may have a promising and unique opportunity.



Recent, Rapid Growth

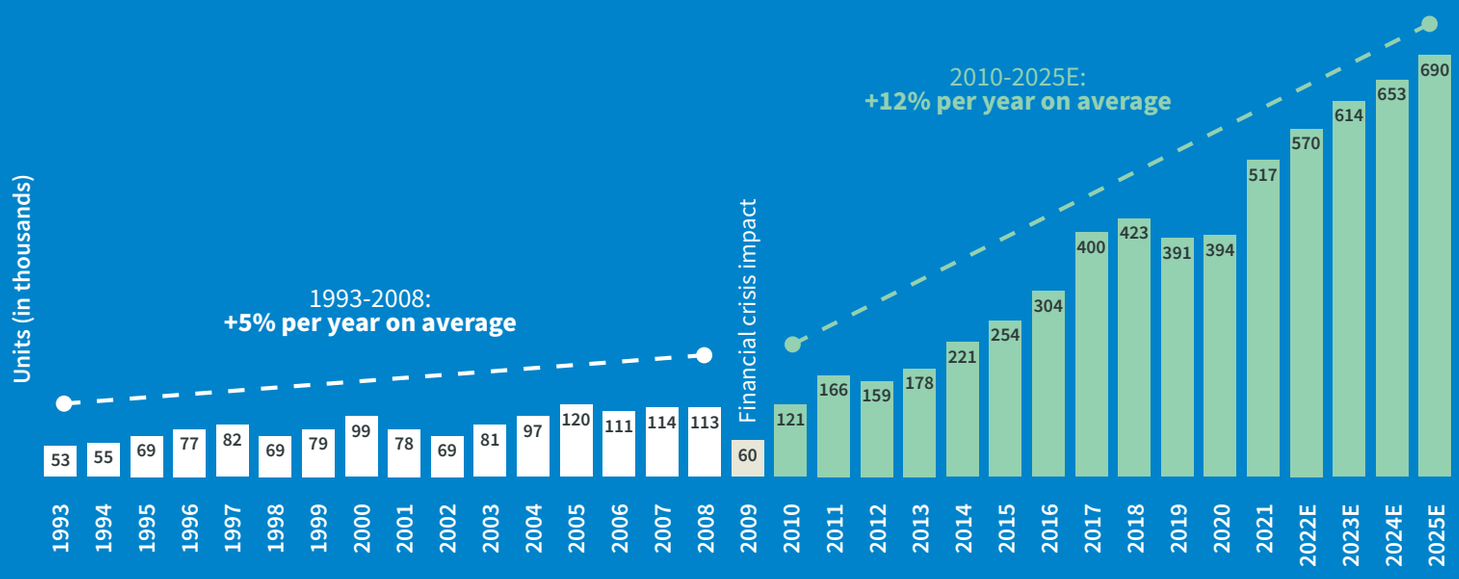
12%
rise in North American manufacturing of robots in 2022 [2]

5.62%
CAGR expected in U.S. robotics market, growing market value to $9B by 2027 [3]



The number of robots joining the U.S. workforce is growing exponentially, and expanding beyond the automotive sector, thanks to systems becoming increasingly powerful and affordable. In 2021, North American companies spent over $2B on nearly 40,000 robots [1] to contend with record demand amid a labor shortage.

Worldwide annual supply of industrial robots



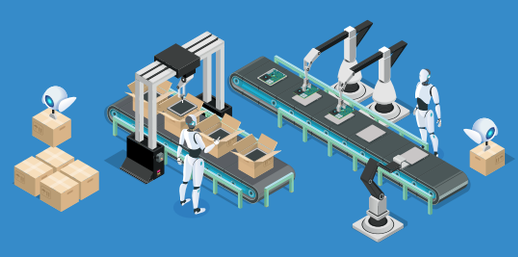
Source: AXA IM. Chart: IFR World Robotics 2022. Performance results of the past are not a reliable indicator for any future returns or trends. The growth of the global robotics market is not a reliable indicator of performance of the securities/companies which will be selected.

Driving Economic Factors

Companies are not only facing labor shortages, but also political and supply chain uncertainty.

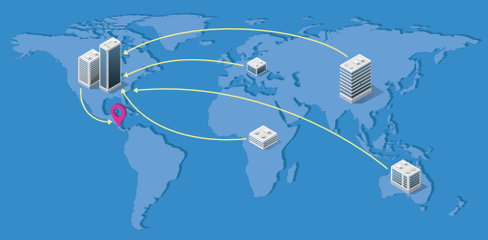
1.97M
fewer Americans are working today vs. February 2020 [4]

2.1M
U.S. manufacturing jobs expected to be unfilled by 2030 [5]



Consequently, many companies plan to reshore or nearshore and invest in robotics to increase supply chain stability.

70% of U.S. businesses were planning on reshoring or nearshoring operations in 2022 [5]



62% plan on investing in robotic automation by 2025 [5]

Industries Forever Changed

Robotics and automation will likely change how people work, allowing for more flexible, resilient, and sustainable processes. Robots will take on the repetitive and physically taxing jobs, mitigating labor shortages, increasing precision, creating a safer working environment, and allowing workers to focus on more essential tasks.

1%
increase in industrial robot density can lead to a 0.8% increase in productivity, and that percentage rises to 5.1% in industries slow to adopt robotics [6]

$22M
at most in savings per warehouse [7] as a result of Amazon cobots

Game-Changing Technologies

Artificial intelligence and other technologies are transforming what we thought robots were capable of. Take semiconductors, for example. These microchips aren't just vital for cars, phones, and computers. They're also key players in today's advanced robotics, allowing for improved capabilities, smarter navigation decisions, 3D vision, and autonomous grasping and positioning of non-uniform objects — and the semiconductor market projects to grow from here.

Global semiconductor market size was $527.88B in 2021 and is expected to reach $1,380.79B in 2029 [8]

The CHIPS and Science Act will provide $52.7B to improve American semiconductor research and manufacturing [9]

Sector Impacts

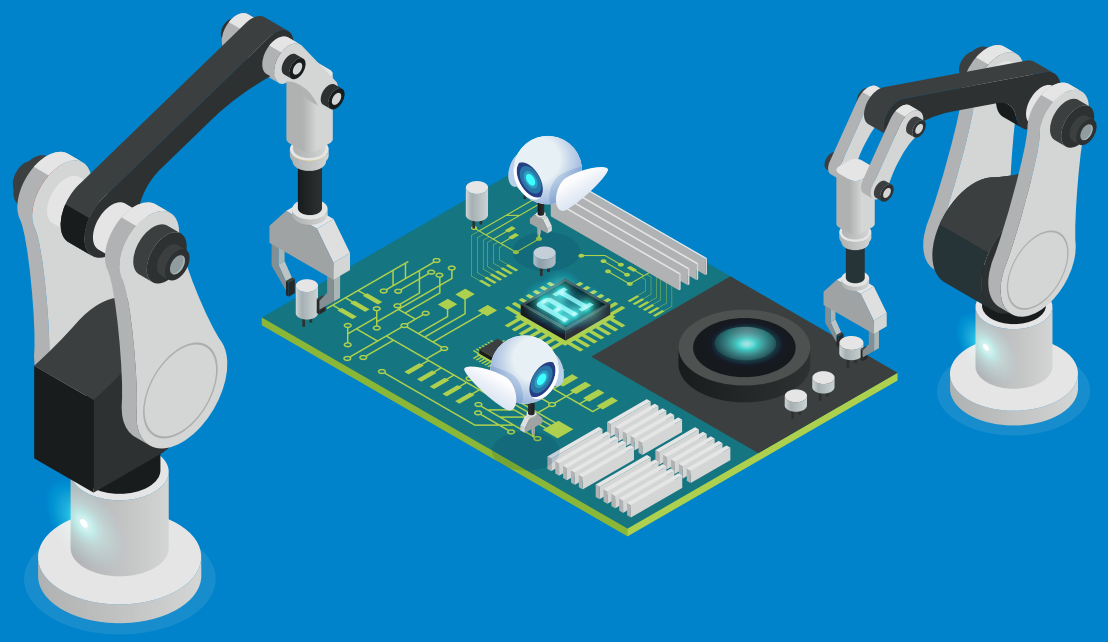
Manufacturing

Robots have been prevalent in automotive manufacturing for some time, but they're only beginning to enter sectors like food processing and electronics manufacturing. Not only can robots complete high-volume, repetitive tasks like assembly and painting faster than humans, but they can perform operations repeatedly without a drop in quality or accuracy.

A **30%** increase in robot installation above the current forecast for 2030 could result in a **5.3%** increase in global GDP [10]

A **66%** surge in industrial robot installation in the metal and machinery industry in 2021 [11]

25% more robots were installed in the food and beverage industry in 2021 [11]



Transportation

Autonomous vehicles are hitting the roads, freeing up time spent driving and reducing car accidents. Some companies, such as Uber and Lyft, are already testing self-driving rideshare services.

Since these vehicles require advanced semiconductors and have long production cycles, investors have strong visibility into component suppliers' revenue growth. Vehicle safety will continue to be a significant focus, prompted by consumer demand and increasing regulations.

1.35M people die in car accidents each year [12]

$1.8T is expected to support those affected by crash injuries worldwide between 2015 and 2030. [12]

56% of Gen Y and **55%** of Gen Z consumers trust self-driving technology [13]

$300B to $400B in revenue could be generated by autonomous driving by 2035 [14]

Healthcare

Though only 4% of surgery is performed with robots, most of which occurs in the U.S., the market is growing [15]. Not only can robots take blood, deliver medications, perform early diagnoses, and even assist with minimally invasive surgeries, but they're also precise and never tire [16]. This leads to better care, faster recovery, and lower readmission rates for patients.

ABB robots have automated the neutralizing antibody testing process, raising the number of tests per day from **15 to 1,000** [17]

250,000+ people die in the U.S. annually from medical errors [18]

The transformative power of robotics is driving unprecedented advancements in countless industries, revolutionizing the economy. Integration of robotics in manufacturing, transportation, and healthcare increases efficiency and productivity, propelling industries forward, fueling economic growth, and offering investors a potential opportunity.

Sources:

(1) Reuters (2/2/2022): Robots marched on in 2021, with record orders by North American firms
(2) International Federation of Robotics (5/23/2023): Robot Sales in North American Manufacturing Up 12 Percent
(3) ABB Robotics & Discrete Automation (5/6/2023): ABB Predicts Top US Robotics Trends
(4) U.S. Chamber of Commerce (6/9/2023): Understanding America's Labor Shortage
(5) ABB Robotics & Discrete Automation (5/6/2023): ABB Predicts Top US Robotics Trends
(6) SelectUSA (2020): Robots and the Economy: The Role of Automation in Driving Productivity Growth
(7) Business Insider (6/15/2016): Kiva Robots Save Money for Amazon
(8) Fortune Business Insights (2022): The global semiconductor market is projected to grow from $573.44 billion in 2022 to $ 1,380.79 billion by 2029, at a CAGR of 12.2% in forecast period, 2022-2029
(9) The White House (8/9/2022): FACT SHEET: CHIPS and Science Act Will Lower Costs, Create Jobs, Strengthen Supply Chains, and Counter China
(10) CNN (6/25/2019): Robots could take 20 million manufacturing jobs by 2030
(11) International Federation of Robotics (10/13/2022): World Robotics Report: "All-Time High" with Half a Million Robots Installed in One Year
(12) Center for Disease Control and Prevention (n.d.): Global Road Safety
(13) J.D. Power (4/28/2016): Consumer Interest Builds for 'Gateway' Automated Vehicle Technologies, Says J.D. Power Study
(14) McKinsey (1/6/2023): Autonomous driving's future: Convenient and connected
(15) Bank of America Merrill Lynch global research estimates (12/2020).
(16) Brookings (3/5/2019): Will robots replace doctors?
(17) University of Texas Medical Branch (2/7/2023): Robots help tackle COVID by automating neutralizing antibody test for research and diagnostics
(18) Johns Hopkins Medicine (5/3/2016): Study Suggests Medical Errors Now Third Leading Cause of Death in the U.S.

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Risk Warning
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