

Robot Operating System - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Robot Operating System Market is expected to register a CAGR of 9.6% during the forecast period.

Key Highlights

- Furthermore, ROS can be used in building and simulating robotics applications and unmanned ground vehicle missions. There has been a strong adoption of robots during the pandemic. According to a World Economic Forum survey of 300 global companies, four of five business executives are accelerating plans to digitize work and deploy new technologies, such as AI and Robotics.
- Various robot manufacturers have also seen a spike in the sales of robots. For instance, according to EES corporation, in 2021, the sales of healthcare robots have risen purposed for helping medical professionals. Significant growth of 69% has been noticed worldwide.
- The robot operating system (ROS) developed by Open Source Robotics Foundation is a collection of software and tools that enable building robot applications. The robot operating system market (hereafter referred to as the 'market studied') is characterized by increased global robotics adoption, the requirement for cost-effective and configurable robots, and increased investment being realized from vendors to develop ROS services for their hardware clients.
- According to the International Federation of Robotics, the market for collaborative robots is expected to reach USD 12.3 billion by 2025. Intelligent robots work alongside workers and can be programmed by most factory workers to take on routine, tedious tasks and deliver with accuracy. Additionally, robot manufacturers focus on improving training and programming methods and simulations, replacing older systems with upgraded ones while retaining their proprietaries. Hence, the open source ROS finds its increased adoption.
- Some of the major vendors in the market are collaborating to launch ROS-based technology that enables a new level of performance and collaboration between multiple AMRs with real-time communication. For instance, in February 2022, Northrop Grumman's Remotec announced a strategic partnership today with Kinova, aiming to foster a robust Innovation and Technology

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(I&T) ecosystem to develop and deploy AI-based applications faster.

Robot Operating System (ROS) Market Trends

Increased Adoption of ROS by End-user Industries is Expected to Drive the Market Growth

- The increasing demand for autonomous robots is fueling the adoption of open-source ROS, as software development for such robots faces multi-disciplinary challenges. According to MHI Industrial Annual Report, 2022, the technology adoption rate of robotics and automation accounted for 65.1% in 2021 and is expected to reach 73% by 2025.
- The demand for such robots is increasing numerous due to their different operational behavior and patterns. Furthermore, they are smaller and made with the perfect orientation and instructions to perform tasks without errors and delays in actions. It is increasingly demanded with applicability for conditions, such as not-so-human friendly conditions, elevated temperature, pressure, and challenging to reach hazardous places.
- With the massive influx of players in order fulfillment, warehouse, and logistics space, such markets serve a ready yet sustainable market for ROS-based solutions. Plus, warehouse labor shortages have primarily motivated the logistics company to employ bots within their warehouse.
- There has been rapid development in the ROS software by vendors studied in the market for supporting the growth of robotics in commercial and industrial adoption. In April 2021, Canonical and Open Robotics announced a partnership for Robot Operating System (ROS) Extended Security Maintenance (ESM) and enterprise support as part of Ubuntu Advantage, Canonical's service package for Ubuntu.
- The partnership helps in supporting the robotics community by making ROS robots and services easier to build and package, more straightforward to manage, and more reliable to deploy.
- However, a challenge that remains to be focused upon is analytics. Most of the data collected from AMRs and sent to advanced cloud spaces for processing makes the cloud build latency and, in turn, high cost of an operating system.

Asia-Pacific is Expected to Grow at a Significant Growth Rate

- Asia-Pacific has recorded impressive growth in robots, both in volume and robots. It is expected to have the highest growth rate during the forecast period owing to the increasing adoption of automation by manufacturing industries and the adoption of industrial robots throughout the region.
- Countries such as China, Japan, Thailand, and South Korea manufacture both commercial and industrial robots in high volume. The adoption rate of robotics in China and India is very high, owing to the massive deployment in the electronic and automotive manufacturing sectors.
- The Indian government, for instance, plans to invest in military robotics and has recently tied up with Japan. By 2023, the country plans to implement AI and induct around 544 advanced robotic soldiers that are lightweight and consist of surveillance cameras and transmission systems with a range of 200 meters for the purpose.
- China is expected to witness an automation surge over the forecast period. According to IFR, 71% of all newly deployed robots in 2020 were installed in Asia, up from 67% in 2019. The region's largest adopter was China, where the installations grew strongly by 20% with 168,400 units. This was also the highest value recorded for a single country, with the operational stock reaching 943,223 units (+21%).
- The "Made in China 2025" plan began as a 10-year vision to transform China from a low-end to a high-end producer of goods, aiming to make China the global leader in high-tech manufacturing. This transformation may positively impact technologies like AI, Big Data, IoT, and robotics and enhance automation and industry 4.0. The fast industrialization, massive overseas investment,

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and continuing to be a manufacturing powerhouse accords China a vast market for the use of robotics.

- China's National Development and Reform Commission has announced an AI three-year implementation program expected to accelerate the adoption of advanced technologies to help the country become a superpower by 2030. Moreover, an investment support program launched in May 2021 is expected to boost investment in machinery and equipment further. According to IFR, the demand for robots both from the electronics industry and automotive suppliers is expected to grow substantially by 11% in 2021 and by 8% annually on average in the following years.

Robot Operating System (ROS) Industry Overview

The ROS market is highly competitive and is currently dominated by a few players with technological expertise in robotic technology. The global market is expected to be consolidated in nature, and the major players with a prominent share in the market are focusing on expanding their customer base across foreign countries by leveraging on strategic collaborative initiatives to increase their market share and profitability. Microsoft Corporation, KUKA AG, and Clearpath Robotics are some significant players in the current market.

- February 2022 - Mitsubishi Electric Corporation developed a teaching-less robot system technology to enable robots to perform tasks, such as sorting and arrangement, as fast as humans without having to be taught by specialists. The technology is expected to be applied in facilities such as food-processing factories.
- March 2021 - Ambi Robotics launched its advanced robot operating system based on simulation to reality artificial intelligence. The launch is in line to meet the demand of the staggering growth of online deliveries during the COVID-19 pandemic.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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