AUGUST 2026

INDUSTRY REPORT

Robotics in Packaging & Processing

EXECUTIVE SUMMARY

PMMI Business Intelligence

pmmi.org

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Who We Are and What We Do

PMMI is a global resource for the packaging and processing industry, unifying the industry across the manufacturing community. PMMI members promote business growth in a variety of industries by developing innovative manufacturing solutions to meet evolving consumer demands, today and in the future. PMMI membership represents more than 1,000 manufacturers and suppliers of equipment, components, and materials as well as providers of related equipment and services to the packaging and processing industry.

PMMI Business Drivers support the industry by delivering a variety of valuable resources, such as in-depth market research, practical best-practice tools and reports, specialized technical training, networking events, and other essential services.

PMMI connects consumer goods companies together with our members' manufacturing solutions through the premier PACK EXPO portfolio of trade shows, including PACK EXPO International, PACK EXPO Las Vegas, PACK EXPO East, PACK EXPO Southeast, EXPO PACK México, and EXPO PACK Guadalajara.

About This Report

This report was produced by PMMI in conjunction with leading market intelligence company Interact Analysis, a global research house with offices in the U.S., China, and the UK. Interact Analysis specializes in the entire automation value chain from product manufacturing in automated factories, through to storage in automated warehouses, and finally to distribution via fleets of increasingly electrified and automated commercial vehicles. Interact Analysis boasts a wide industrial client base that includes market leading industrial automation companies. The report was compiled by a team of experts with a wealth of experience and knowledge in the field, conducting extensive primary analysis informed by the following research methodology.

Methodology

For the purpose of this report, an online survey was conducted among 173 qualified professionals from U.S.-based End User companies, including consumer packaged goods (CPG) and contract packaging/manufacturing organizations, as well as packaging/processing machinery OEMs, system integrators, and robotics suppliers. Respondents represented a range of functions, including executive leadership, engineering, IT/OT, logistics and supply chain management, maintenance and service, plant management, and purchasing/procurement. End-user respondents were required to have at least some involvement in robotics purchasing decisions within their organizations. In addition, a series of in-depth, semi-structured interviews were conducted with industry experts representing End User companies, packaging and processing machinery OEMs, system integrators, and robotics suppliers. Survey and interview findings were analyzed by Interact Analysis subject matter experts and supplemented with additional industry context and insights.

Definitions

Industrial robot: Automatically controlled, reprogrammable machines that can move across multiple axes to manipulate materials, parts, products, or tools in industrial environments. They include robot types such as Articulated, Cartesian, Delta, and SCARA.

- **Articulated robot:** Has a jointed arm, typically with four to six axes, that allows it to move in a way similar to a human arm.
- **Cartesian robot:** Also known as linear robots or gantry robots. Cartesian robots have three prismatic joints whose axes are aligned with a linear coordinated system. They move along three linear axes, typically X, Y, and Z, using a gantry or rectangular coordinate structure.
- **Delta robot:** Robots with arms and prismatic or rotary axes in parallel that are connected to universal joints at the base. Delta robots operate in 3, 4, or 6 axes.
- **SCARA robot:** The acronym SCARA stands for Selective Compliant Assembly Robot Arm. SCARA robots are based on a 4-axis design, with two parallel rotary joints that provide compliance in plane.

Collaborative robot (cobot): Safely and effectively interacts with human workers while performing industrial tasks within a defined collaborative workspace (without the need for industrial fencing or a dedicated robot cell). The term 'cobot' is used as an abbreviation for the term collaborative robot.

Mobile robot: An autonomous or semi-autonomous robot that moves through a facility to transport materials, products, or components. In industrial and warehouse environments, mobile robots are commonly used for goods movement, line replenishment, order fulfillment, and internal logistics.

- **AGV:** An acronym for automated guided vehicle. AGVs transport materials along predefined routes, typically using guidance infrastructure such as magnetic tape, wires, reflectors, QR codes, or fixed paths.
- **AMR:** An acronym for autonomous mobile robot. AMRs navigate dynamically through a facility using sensors, cameras, maps, and onboard software. Unlike AGVs, AMRs can often adjust their route in real time to avoid obstacles.

Humanoid robots: Robots designed with a human-like form, enabling them to interact with and navigate environments built for people. Humanoid robots typically have two arms, which is a key differentiator from collaborative robots. Both wheeled and legged robots are classified as humanoid robots for the purposes of this report.

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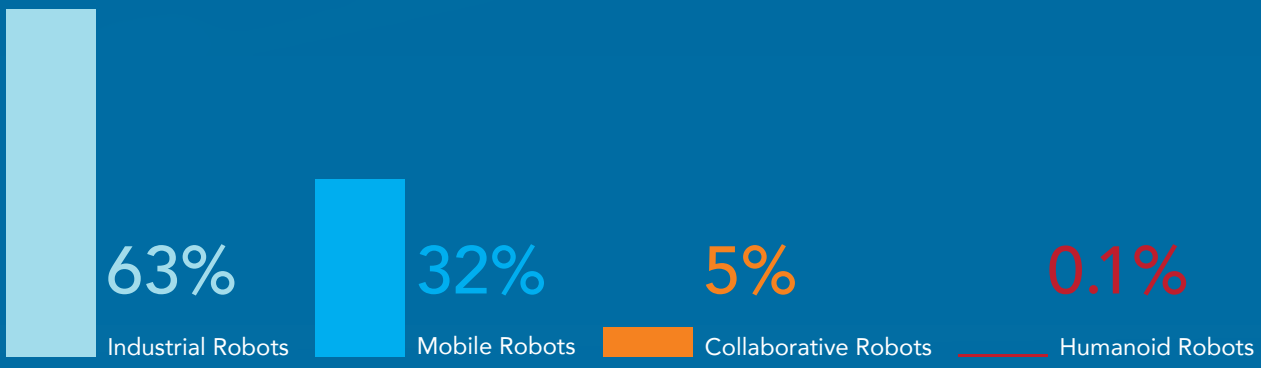
Executive Summary

U.S. ROBOTICS IN PACKAGING MARKET SIZE

The U.S. robotics market for packaging and processing is projected to nearly double by 2031, with mobile robots driving the next phase of growth.

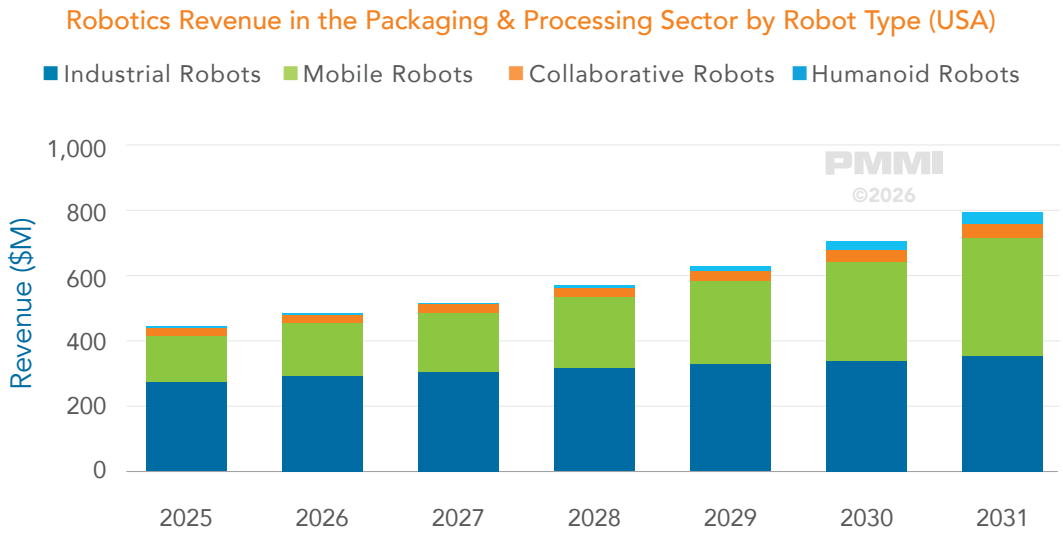
In 2025, robotics in packaging/processing industry worth more than	$440M
By 2031, the industry is predicted to reach approximately	$800M
Average annual growth rate of	10.3%

2025 Market share



Mobile Robots are the fastest growing robot type, and will become the most popular robot type by 2031, with a 45% market share.

Humanoid robot market share will also grow significantly from 0.1% to 5%.



Mobile robots will become the robot type with the largest market share by 2031

CURRENT USE OF ROBOTICS

Many End Users are utilizing robotics, but most deployments remain limited.

- 72% of End Users currently utilize robotics in their operations.
- This is expected to reach 95% by 2031.
- End Users stating they use robotics extensively (deployment across most operations) is projected to grow from 5% to 19% by 2031.

OEMs/Integrators are expanding their robotics offerings.

- 69% of OEMs/integrators currently have robotic offerings in their portfolio.
- This is expected to reach 86% by 2031.
- OEMs offering robotics as a core part of their portfolio, where robotics are utilized in almost all projects, will slightly increase from 20% to 23%.
- Broad deployment will rise from 12 to 34% by 2031.
- This indicates that OEMs will incorporate robotics as a potential solution, while continuing to rely on traditional automation in their overall offerings.

Articulated robots are the established workhorse, while mobile robots are positioned for faster future adoption.

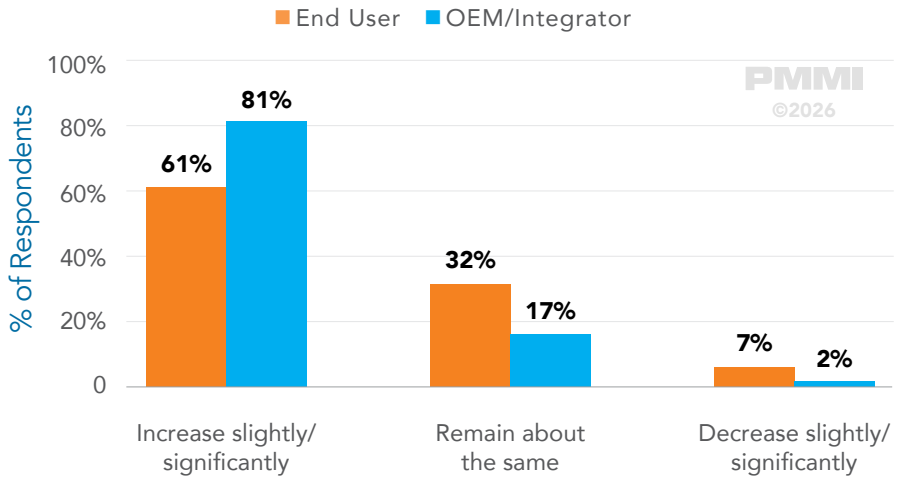
81% Of End Users surveyed use articulated robots in their operations due to effectiveness in pick-and-place operations.

33% Of End Users currently use mobile robots (5th most utilized robot type). Mobile robots are projected to overtake most industrial robot types due to their high growth rate.

10% Of End Users surveyed claim to use humanoid robots in their operations. These are likely to be limited to trial or pilot phases.

FUTURE USE OF ROBOTICS

Both End Users and OEMs/Integrators expect robotics investment to increase, signaling continued market momentum.



61% Of End Users expect to increase investment in robotics over the next year.

81% Of OEMs/integrators expect to increase investment in robotics over the next year.

Key Robotics Applications of Future Interest to Packaging and Processing Industry End Users:

1. Robotic arms for the loading of packaging machines with empty packaging materials and containers (cartons, cups, etc.)
2. Use of mobile robots to bring materials to the line
3. Mobile robots with cobot arms
4. Processing applications

DRIVERS OF ROBOTIC ADOPTION

End Users are adopting robotics to improve operational performance, not only to address labor shortages.

Top 3 Factors Driving End User Robot Adoption:

1. Increasing Throughput and Productivity
2. Lowering Costs
3. Improving Quality and Consistency

End Users prioritize reliability, service, ROI, and integration over robotics capability alone.

Top 3 Criteria for End Users Selecting an OEM

1. Reliability and Uptime Performance
2. Availability and Quality of Service & Support
3. Demonstrated ROI / Payback

KEY BARRIERS TO ADOPTING ROBOTIC PRODUCTS AND SOLUTIONS

For End Users not considering robotic solutions, the absence of a clearly defined use case is the primary barrier to adopting the technology.

Top 5 reasons provided by End Users when asked in an open question why they don't expect to be utilizing each robot type in 12 months' time.

Industrial Robot

1. Not needed/No applicable use case
2. High cost
3. Integration complexity
4. Lack of budget
5. Company not ready

Collaborative Robot

1. Not needed/No applicable use case
2. High cost
3. Company not ready
4. Too slow
5. Not a priority

Mobile Robot

1. Not needed/No applicable use case
2. High cost
3. Footprint not suitable
4. Other technologies more effective
5. Company not ready

Humanoid Robot

1. Not needed/No applicable use case
2. High cost
3. Technology not ready
4. Other technologies more effective
5. Not a priority

The largest barriers to adoption are practical execution issues, such as cost, integration, and support.

High Up-Front Cost

Integration with Existing Equipment or Systems

Maintenance & Service Support Concerns

POST INSTALLATION BENEFITS AND CHALLENGES

Robotics is delivering against most expected benefits, but sustained value depends on training, uptime, and support.

Benefits for End Users

1. Reduce repetitive tasks for employees
2. Reduce labor cost
3. Achieve consistent product handling
4. Increase speed and productivity
5. Achieve repeatable quality

Challenges Experienced by End Users

1. Internal technical skills gaps
2. Lack of operator training and readiness
3. Uptime and reliability
4. Quality of maintenance support
5. Speed of service response

- For End Users, ongoing customer training & technical support is critical. Operators, maintenance teams, and line managers must be confident to use and troubleshoot systems.
- Without sufficient training and responsive technical support, even well-integrated robotic solutions can face lower utilization, longer downtime, slower fault recovery, and reduced operator confidence.
- OEMs should treat customer training, documentation, service support, and post-installation knowledge transfer as core capabilities, rather than secondary support functions.

FUTURE DEVELOPMENTS IN ROBOTIC SOLUTIONS FOR THE PACKAGING AND PROCESSING INDUSTRY

Advances in integration, vision, and speed are making robotics more deployable across packaging and processing applications.

Easier integration reduces implementation risk, shortens commissioning timelines, and makes robotics more deployable in both brownfield and greenfield facilities.

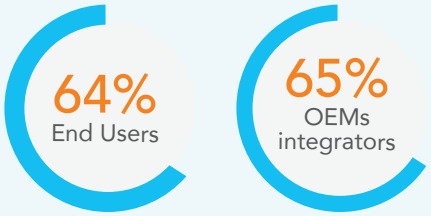
Intelligent vision capabilities are having a major impact by expanding the range of tasks robots can perform. Vision systems allow robots to identify, locate, orient, inspect, and handle products with greater flexibility.

Faster robots can improve productivity, reduce bottlenecks, and make automation viable in applications where previous generations of robots may not have been able to keep pace with line speeds.

Top 3 Technological Developments with the Greatest Impact on the Market in the Past 5 Years:

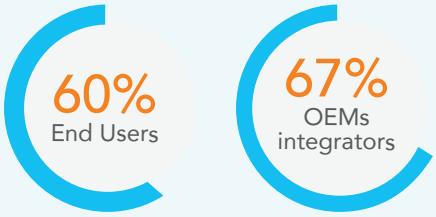
1

Improved integration



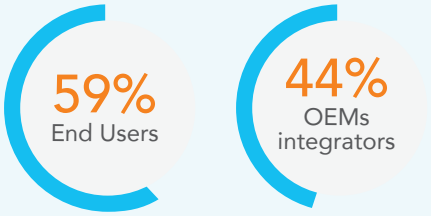
2

Intelligent vision capabilities



3

Increased operating speeds



DESIGN, INTEGRATION, AND SERVICE

The increasing complexity of robotic deployments is leading more End Users to turn to system integrators for integration and support.

Top 3 company types that End Users currently employ to integrate robotics with their production line

69%
Packaging/ Processing Machine OEMs

40%
System Integrators

36%
Internal Engineering Teams

This is likely to change over the 12 months, with the number of End Users expecting to use Packaging/Processing Machine OEMs falling by almost half.

Top 3 company types that End Users expect to employ to integrate robotics with their production line in the next 12 months

53%
System Integrators

42%
Internal Engineering Teams

42%
Robotics Manufacturer

IMPACTS OF LEGISLATION

New safety standards and cybersecurity legislation will increase compliance requirements, while improving confidence in connected robotics technology.

ISO10218 and ANSI/A3 R15.06

The 2025 revisions to ISO 10218[1] and ANSI/A3 R15.06[2] strengthen safety requirements for industrial and collaborative robots, improving clarity for End Users deploying cobots while creating additional short-term compliance, documentation, and validation demands for OEMs/integrators.

Cyber Resilience Act

For packaging OEMs that sell machines into the European market, The Cyber Resilience Act introduces mandatory cybersecurity obligations for connected hardware and software, increasing. compliance requirements for robotics vendors while supporting greater confidence in remote diagnostics, predictive maintenance, and software-enabled automation.

[1]*'ISO 10218-1:2025(en) Robotics – Safety requirements - Part 1: Industrial robots', International Organization for Standardization (ISO), February 2025, https://www.iso.org/obp/ui/en/#iso:std:iso:10218:-1:ed-3:v1:en*

[2]*Schirm, Alexandra, American National Standards Institute (ANSI), 'What Is ANSI/A3 R15.06-2025 / ANSI/A3 R15.06-3-2025?', ansi.org, December 12 2025, https://blog.ansi.org/ansi/ansi-a3-r15-06-2025-robot-safety/*

[3]*'Regulation (EU) 2024/2847 of the European Parliament and of the Council of 23 October 2024 on horizontal cybersecurity requirements for products with digital elements and amending Regulations (EU) No 168/2013 and (EU) 2019/1020 and Directive (EU) 2020/1828 (Cyber Resilience Act) (Text with EEA relevance)', EUR-LX, European Union, November 11 2024, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024R2847*

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Glossary

AI – Artificial Intelligence

AGV – Automated Guided Vehicle

AMR – Autonomous Mobile Robot

CPG – Consumer Packaged Goods Company

CRA – Cyber Resilience Act

EOAT – End of Arm Tooling

KPI – Key Performance Indicator

OEM – Original Equipment Manufacturer

POC – Proof of Concept

ROI – Return on Investment

SaaS – Service-as-a-Software

SCARA – Selective Compliance Assembly Robot Arm

SKU – Stock Keeping Unit

SME – Small and Medium-sized Enterprise

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