



Solving Manufacturing Challenges with Autonomous Mobile Robots

Autonomous mobile robots (AMRs) are a modern take on automated guided vehicles (AGVs), which have existed for more than 20 years. Compared to AGVs, AMRs often include advanced sensor integrations, which allows the collection of new data and flexibility while creating new use cases not previously possible.



AMRs allow manufacturers to be flexible in how they automate material transport within the facility, which is crucial in responding to changing demands.

At its simplest form, the AMR market is often split into manufacturing, warehousing, and distribution. Because of the wide range of tasks required in numerous industries, there are often specific robots optimized for one environment.

What's driving the adoption of AMRs in manufacturing? Safety. Every year, there are thousands of forklift injuries. AMRs help reduce those numbers by assuming potentially unsafe tasks and using features like 360 obstacle detection to create a much safer alternative for material transport in collaborative spaces.

In addition to safety, many manufacturers strive to enhance the work experience for their team. Reducing the number of strenuous activities with autonomous mobile robots makes work more enjoyable. This is especially critical because of the current labor shortage facing manufacturers. There will be an estimated 2.1 million unfilled positions by the end of 2023 and as such, the pressure to retain talent is higher than ever.

LET'S TALK RETURN ON INVESTMENT

As technologies advance, AMRs will get easier and faster to deploy. Manufacturers need to be aware that an investment in AMRs is not just the hardware, but the time that goes into implementation as well.

A return on investment for AMRs comes from keeping it simple and collaborative. Workers can focus on intricate skills that involve critical thinking while assigning the repetitive, potentially harmful tasks like material transport to the AMR fleet. When manufacturers strategically deploy their assets, AMR applications show a fast and tangible ROI which accelerates adoption.

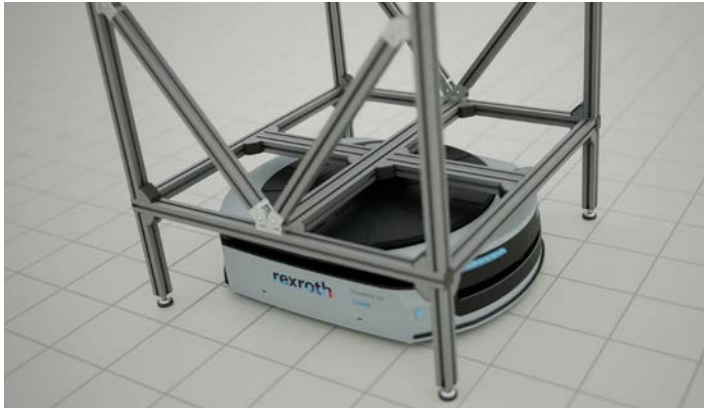
How do you know if AMRs are the right target in your application? Look for opportunities like:

- Relocating material in and out of different workspaces
- Replacing forklifts that transport materials from dock areas to storage or production areas
- Moving material from the ASRS system to the production lines via AMR versus conveyance
- Bringing assembly workers more components

SEAMLESS INTEGRATION OF AMRs INTO EXISTING WORKFLOWS

If you evaluate how products are manufactured today, human labor is used minimally in production. Most often, the product goes through CNC machines, injection molding machines or other automated production. Typically, a product is manufactured by machines with humans supervising. Intralogistics, however, operates differently.

Where AMRs really shine is material transportation between machines, which is often a manual process. AMRs allow manufacturers to be flexible in how they automate material transport within the facility, which is crucial in responding to changing demands and being adaptable to a wide range of industries.



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Interoperability is also critical when considering AMRs. To work effectively, robots need to be able to not only communicate with people, but also with different safety devices and other types of AMRs in the fleet. That is why

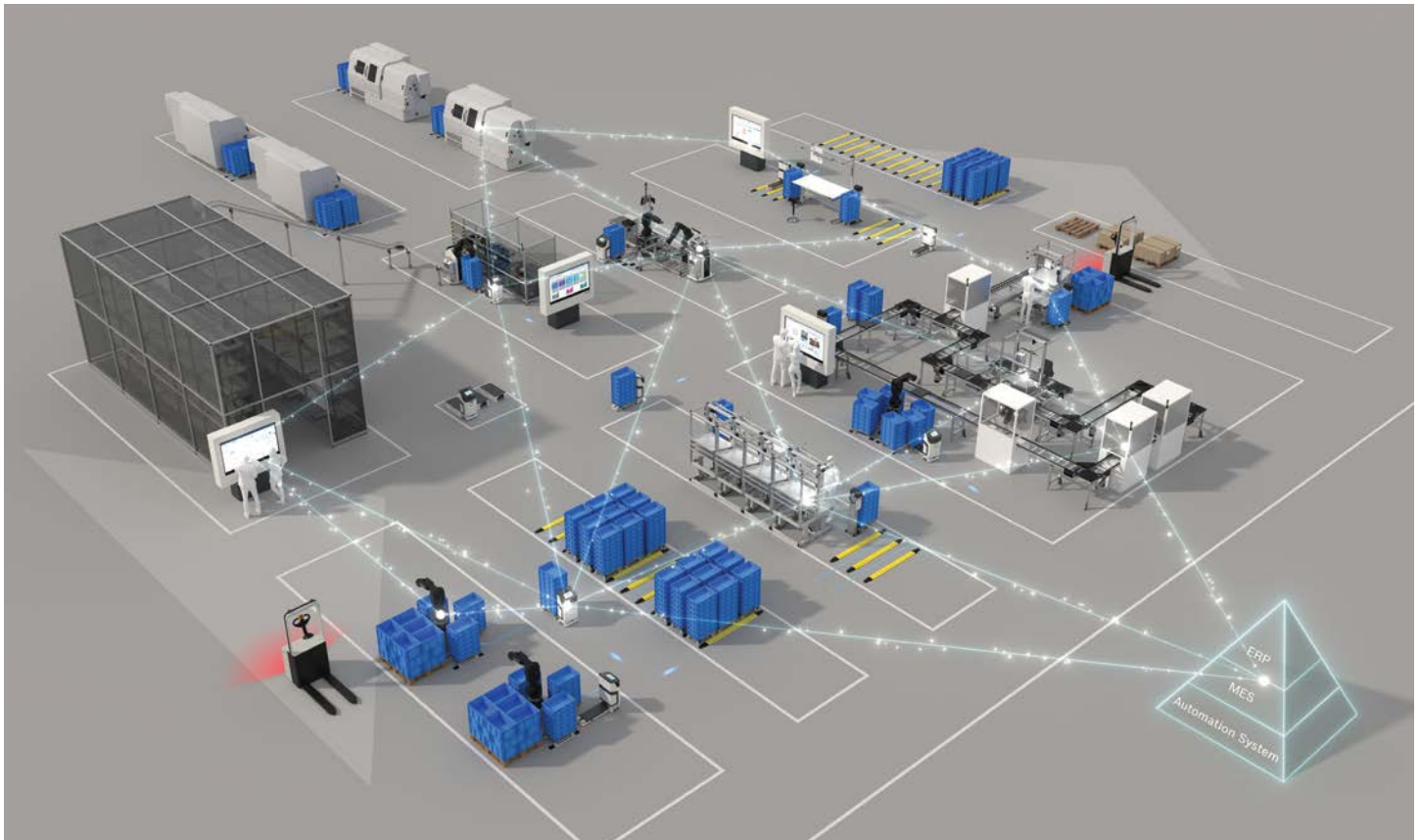
VDA 5050 – a standard interface coming out of the automotive industry – is so important and quickly becoming a standard for AMRs in industrial sectors. Without the standardized interface VDA 5050 provides, it's harder to integrate third party solutions or share the space with other devices.

The adoption of mobile robotics is still growing, with the manufacturing industry at a 10% adoption rate. Currently, manufacturers are evaluating how mobile robotics can benefit their workforce, improve production processes, and help them expand operations. Preparing your manufacturing facilities for the introduction of robots is critical for advancing automated operations and ensuring successful workflows. As mobile robotics prove their worth and more manufacturing leaders start moving towards implementing fleets, the adoption rate for mobile robotics in manufacturing workflows will start to increase.

Authors

Armando Gonzalez,
Business Leader of AMR/Robotics for North America at
Bosch Rexroth Corporation

Emil Hauch Jensen
General Manager of International Business, Moving &
Service Product Division at Geek+



Bosch Rexroth Corporation

14001 South Lakes Drive

Charlotte, NC 28273

Phone: (800) REXROTH

(800) 739-7684

info@boschrexroth-us.com

www.boschrexroth-us.com

Geekplus America, Inc.

3970 Johns Creek Court, Suite 325

Suwanee, GA 30024

Phone: (470) 348-4339

salesamericas@geekplus.com

<https://www.geekplus.com/>



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Do you have technical advice worthy of an article?

Contact:

Eden Estabrook

(704) 942-4227 or Eden.Estabrook@boschrexroth-us.com

Contact for further information and support:

info@boschrexroth-us.com