Körber Supply Chain

Moving to the next level

Compounding value by integrating voice and AMR technologies on the warehouse floor

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Introduction

Within a distribution center (DC), the future lies in flexible automation – technology that can adapt over time for changing requirements and needs. This applies to DC automation as a whole with voice technology and autonomous mobile robots (AMRs) leading the way in terms of scalability and adaptability.

As standalone solutions, each provides powerful value. When integrated, they open a new realm of possibilities.

> "One of the main questions we ask when we're looking at implementing a voice and/or AMR system is: What are humans doing today that they need to do, or don't necessarily have to do?"
>
> **Peter LaGow**
> Senior Business Consultant, Körber Supply Chain

How voice technology and AMRs work

Voice technology

Voice technology is generally used for, but not restricted to, warehouse outbound processes. The team member receives instructions through a headset connected to a device on their belt. They then confirm each step through a microphone in real time, before moving on to the next task. Through voice, they can work hands free and eyes free, without spending time recording data onto a clipboard or hand-held device. In turn, this boosts productivity, accuracy and safety.

AMRs

AMRs can do many movement activities in a warehouse such as product picking, fulfillment and pallet moving. This removes many "non-value-add" activities that a picker would have previously needed to do, making them far more productive overall.

AMRs move without rails or tracks, instead using sensors, cameras, and embedded safety mechanisms, to build a digital map of their environment. This frees more space on the warehouse floor.

Integration is key

While voice and AMRs play their own distinct and independent roles within a DC's operations, the ultimate value proposition lies in integrating both technologies. By doing so, the operator can remain hands free while also leveraging robotic technology. The voice-directed picking system knows how long it will take to complete a task, how many items are on the pick list, the average pick time and amount of travel the robot needs to perform. By integrating voice and AMR technology into your WMS, both picker and robot are at the right place at the right time. Examples include:

A pick-to-pallet workflow

Traditionally, the picker in this scenario would drive a fork truck, dismount to retrieve goods, then climb back on and drive to the next location. Today, we have a scenario where the robot, mounted with a pallet, moves through the pick path using voice-directed signaling. In the meantime, the voice-directed worker can remain in the aisle conducting the value-added tasks that the robot cannot do – such as physically picking cases from a stationary shelf. Furthermore, by leveraging AMRs in a case pick to pallet workflow, the robot can travel along an optimal path to better enable a perfect pallet construct. Since the picker is not responsible for the travel path, and only follows voice-enabled pick instructions, the pallet can move between zones (and back if required), to drive a more efficient pallet build.

Offloading a container at a dockside

You can use voice to give instructions on the number of units needed to develop a pallet. Then, once the pallet is full, the voice system instructs the robot to move it to the next zone.

Creating value

Implementing voice technology into your processes produces an almost immediate 20–25% productivity increase. You can maintain productivity levels while reducing labor, which means you can do more with your existing team.

Scalability

Both solutions are completely scalable as your needs change. They are technologies that a DC can deploy early on in their technology journey and grow simply by adding more voice headsets or AMRs, which can be leased and off-hired as needed. This helps you to meet demand created by peak seasons such as national holidays or Black Friday events without significantly increasing your workforce, then scale back down again. That way you can budget through operational rather than capital expenditure. With voice, you also significantly reduce your training time, making it even easier to scale.

Voice technology – 4 steps to compounding value

1. **Voice enablement**
   Eliminate paper and hand-held devices within your processes

2. **Voice optimization**
   Use data analytics to optimize "best-route" pick paths and processes

3. **Voice enablement with AMRs**
   Couple voice with autonomous materials transportation

4. **Voice optimization with AMRs**
   Combine human and robot orchestration through optimized pick paths

Step change improvement
Studies have found that over 70% of the time, deploying robotics yields double-digit improvements across several operational KPIs which include productivity, speed, operating capacity and service levels.[1]

1. Commercial Service Robotics Survey IDC, July, 2018

Critical success factors

When considering a voice–AMR integration, you must:

Think holistically

You may see the obvious roadblocks in your processes, but there could be other, more subtle issues. Your partner should work with you to look at your processes holistically; that way you can ensure your voice–AMR integration addresses all your pain points and optimizes value across your entire operation.

To design a seamless process within voice, AMR or any other technology, ask yourself exactly what you are trying to solve – the who, what, when, where, why and how. This step will help identify how a voice and/or AMR solution will achieve the desired outcome. Both voice and AMRs should be solving different problems in a way that optimizes the end result.

Consider labor constraints

Both voice and AMR are completely flexible and scalable, but the human element can be a greater challenge. DC environments are known to have consistent labor shortages. Voice and AMRs can be used to get the best performance out of the workforce you do have.

Look forward

Your partner should be listening to what you want to achieve right now, while opening the discussion on where you want to be in five or ten years. That way, they can consult with you on how you can plan your process technology solution to align with your short-, medium- and long-term growth strategy.

"There is huge value to be gained from integrating voice and AMR, but the due diligence has to be right. At the end of the day, the best result stems from situation analysis, appropriateness and workflow requirements."

John Santagate
Vice President Robotics

Best-fit voice and AMR applications

Voice and AMR solutions are perfectly suited to any process where there is a combination of manual labor and excessive travel times throughout the DC. Commonly, best-fit tasks include:

- **Case picking**
- **End of aisle automation**
- **Receiving to staging**
- **Put-away and replenishment**

Why Körber?

With two decades of dedicated voice experience, we have grown to be the world's largest industrial voice integrator, serving over 1,300 voice customers worldwide. And with the world's most robust AMR capabilities, we implement the best-fit robotics solution tailored to your needs.

Our strengths lie in:

- **Our global presence** with local support wherever you are located
- **Our process knowledge** in integrating voice and AMR solutions
- **Our technology leadership**, with solutions tailored for every company size, sector and use case
- **Our software compatibility**, which integrates with your key host systems
- **Our solutions scalability**, allowing you to keep aligned with the changing needs of your business

We understand that each customer has a different set of circumstances, and pride ourselves on the thorough research we conduct before designing and deploying any solution. Our aim is to be your long-term partner.

We work with you throughout the entire process to ensure every detail of your system works with optimal functionality. And then on an ongoing basis once the system is operational to make sure it is delivering maximum performance. As your business dynamics change, we are on hand to support your changing needs.

Conclusion

DCs must drive improvement. It may be that you already have a voice system which you are comfortable with and delivers the value you need. Your next objective may be to compound that value by introducing AMRs.

Or, it might be that both technologies are completely new to you, but you can see the potential benefits that hands-free work with flexible and scalable automation will bring to your operations.

The main objective must be helping DC staff to work more efficiently through assistance with intelligent and appropriate automation.

Find out more
Should you consider migrating to a voice picking system, AMR solution, or upgrading your existing systems, please visit our website for more details:

Learn more about our Voice solutions:
Read more →

Learn more about our AMR solutions:
Read more →