
Knowledge Brief

Quadrant Knowledge Solutions

How Voice Solutions are Transforming Warehouse Operations and Productivity

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The way warehouses are managed is undergoing a major transformation. The growth of e-commerce, 3PL, omnichannel, and direct-to-customer businesses is putting pressure on warehouse operators to enhance the performance of their operations. Additionally, labor shortages due to the prevailing labor market dynamics and COVID imposed social distancing and other norms are forcing them to adopt measures to get more out of their existing workers. Therefore, warehouse operators are now seeking new ways to improve the efficiency, throughput, and productivity of their workforce and operations. Driven by the above factors, businesses are investing in technology solutions to overcome these challenges. One such technology is the use of voice-based applications in warehouses, which can significantly improve productivity.

Quadrant Knowledge Solutions, as part of its efforts to keep track of the developments, shared its thoughts about warehouse digital transformation trends with the Körber Business Area Supply Chain, a leading provider of end-to-end warehouse solutions. While our discussions covered many software solutions, including warehouse management systems (WMS), warehouse control systems (WCS), and autonomous mobile robots, the focus of our discussion was voice-directed solutions, which assist warehouse workers in performing picking, replenishment, inspection and other activities. It was interesting to talk about voice solutions with a company that has supplied voice systems to over 1,500 warehouse sites worldwide. The company holds the intellectual property for the voice recognition and integration software. It also partners with leading providers to get the optimum solution for their end customers.

Voice-directed Warehouse Technology

During our interactions, Körber confirmed that many warehouses are using the voice system that works on voice-directed warehouse (VDW) technology. The voice system involves the use of an industrial-grade wireless wearable mobile device with a headset and a microphone. The voice application, which synthesizes text-to-speech and speech-to-text, runs on the mobile device. The device helps establish the conversation between the worker wearing it and the instruction-initiating system, which may be the supply chain management system, enterprise resource planning system, or other enterprise software

systems. The technology leverages a voice-as-a-user interface (VUI) that allows workers to interact with the mobile device through voice commands to guide workers around the warehouse. It also captures their response and updates that into the system. Other commonly used UIs include paper or the screen of the handheld device. Sometimes, the voice system may also work in conjunction with barcode scanners or radio frequency identification (RFID) devices. The warehouse worker performing the task, such as picking for order fulfillment, gets real-time wireless access to the information needed to accomplish the task quickly and accurately.

With the help of VDW, workers can be provided with appropriate step-by-step instructions in an easy-to-understand language. Should the need arise, the workers can also establish a dialogue with the instruction-initiating system, such as WMS, and provide feedback to it. The workers can act on the task-related instructions they hear. The instructions can cover all necessary information, such as what to pick and what quantity, the picking location, what to do after picking, etc. The instructions may even include tips to guide the workers to the optimal path to reach the picking location quickly. On completion of a task, the workers need to provide the status to the instruction initiating system or take further instructions by means of voice responses recognized by the voice software. Since the voice systems are hands-free and heads-up, the workers are freed from looking at a screen or perform other actions, such as keying in the feedback.

Primary Value Proposition of Voice-directed Technology

The use of voice systems in warehouses, distribution centers or order fulfillment centers is growing rapidly because of the numerous benefits. They are easy-to-use, cost-effective and can be deployed quickly. The payback period is also attractive. VDW poses twofold benefits – one at the business level and the other at the internal process level. Some of the business benefits are as follows:

- ◆ **Error-free Operations:** The alternatives to a voice system usually involve reading from a scanner or paper. A voice system frees the worker from such distractions and helps them reach the right storage place and pick the exact quantity of the correct item. This ensures error-free operations. Thus, voice-based systems provide a significant advantage over paper-based systems, which are prone to errors.
- ◆ **Increased Productivity and Throughput:** Use of voice technology allows the workers to concentrate on performing their tasks as per the instructions given through the voice system. This increased concentration leads to an increase in the workers' productivity. In addition, the voice system gives fresh instructions for the next task upon the completion of the current task. Thus, the throughput increases.
- ◆ **Workplace Safety:** With their eyes free to see their surroundings, workers are more aware of their surroundings. This increased awareness helps them avoid colliding with forklifts and other dangerous equipment. Therefore, the workplace becomes safer.
- ◆ **Quick Onboarding of Workers:** With the help of training tools available with the voice system, the onboarding of workers becomes easier and quicker. In fact, the workers can self-train and quickly become proficient in performing their tasks.

The new generation of workers, who are typically more tech-savvy, will be able to quickly adapt themselves to work alongside the VDW technology and work enthusiastically.

From a process standpoint, the improvements include the following:

- ◆ **Continuous Performance Tracking:** The voice system can aid the instruction initiating systems, such as the WMS, to track the workers'

activities. Thus, the progress of the order fulfillment, stock position, etc., can be effectively monitored on real-time basis.

- ◆ **Overall Performance Improvement:** The use of a voice system contributes to ensuring customer satisfaction, efficient warehouse operations, throughput increase, and such others by enhancing the accuracy of operations, boosting productivity, ensuring safety, and facilitating quicker onboarding of workers. In addition, the ability of the voice systems to recognize many languages also allows warehouse operators to access workers from a wider, diverse pool.

Like all other technologies, there are a few constraints to adopting voice-based technology. The most common ones are around investments – whether voice is too expensive or if the customer must modify the whole warehouse to enable it for voice. Other constraints are mainly around the time taken for implementation and complications around integration.

The Körber Advantage

The Körber Business Area Supply Chain collected and analyzed the performance data from some of the sites where companies have deployed voice solutions. This analysis has revealed the following quantifiable benefits.

- The return on investments in voice solutions is around 12 months
- Because of warehouse workflow improvements brought about by voice capabilities, the productivity and accuracy could increase by about 35 percent and 25 percent respectively; the workers training time could reduce by about 50 percent

These benefits show customer apprehensions around investments and other roadblocks in the adoption of this technology are largely unjustified. Besides these impressive benefits, customers or prospects can also look at Körber as a technology partner while planning multinational/multi-site deployments. Körber provides integrated warehouse management solutions, which include voice or can just come in as a standalone voice integrator. In addition, warehouses, seeking visibility into operations, expecting high productivity, or struggling to find and keep high quality manpower, can look at Körber as a potential supplier partner. The company has a wide range of back-end integration solutions with legacy systems or other known software providers. The devices that Körber uses run on Körber software, which is capable of operating in more

than 50 major languages, making it an easy fit for rolling out the technology globally.

Some of the case studies around successful implementation of voice enabled services include [Fox Racing](#), [Sysco Guest Supply](#), [Crown Paints](#), and [The Kellogg Company](#), among others.

Conclusion

Voice is a mainstream technology that has existed for over 30 years now. In today's times, talking to computers or devices and wearing headsets is normal. Voice technology has introduced many innovations that are transforming the business processes, the conversation, as well as the way we interact. Though the technology is proven, its use in warehouses is starting to get more traction. The future is promising, with steady growth expected in the coming years. Voice is an add-on and can be well integrated into an existing or new WMS.

Though the benefits of voice technology are immense, businesses need to consider the processes and integration options that are best suited to their requirements. The technology provider and the integrator are the key partners in a successful voice-enabled process. There is no one-size-fits-all solution, and businesses should seek out a reliable and experienced partner to support them in the design and implementation of a voice system.