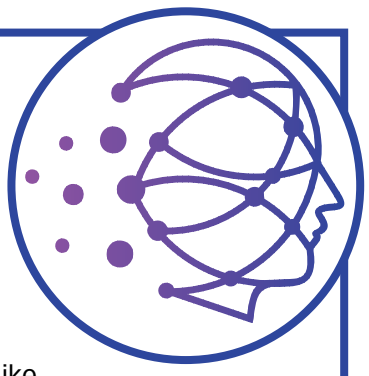
DCVinfographic

DCs look to emerging technologies to cope with rising fulfillment pressures

Cutting-edge tech is an increasingly common sight around the warehouse, from robots to drones to wearable devices.

Challenges like a shrinking labor pool, surging volumes of e-commerce orders, and heightened consumer expectations for fast delivery are putting the squeeze on warehouse operations. Traditional remedies like software upgrades, mobile computers, and automated handling equipment can help improve productivity to a degree. But in order to truly stay ahead of spiraling fulfillment pressures, many DCs are turning to emerging technologies. As the industry enters a new year, here are some cutting-edge offerings that are becoming increasingly common in the warehouse.

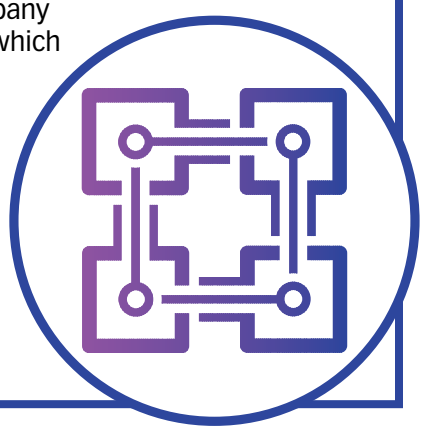
Voice-enabled logistics software platforms powered by artificial intelligence



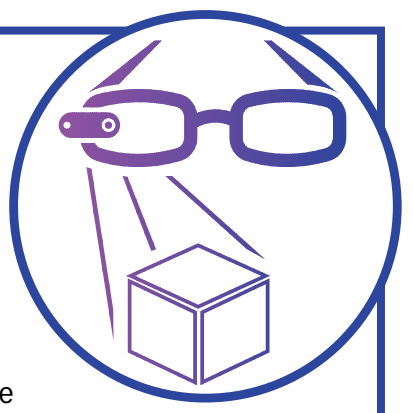
Software vendors like Infor and HighJump as well as logistics and transportation giant XPO have added voice recognition to their platforms, enabling the software to respond to spoken commands (think systems like Amazon.com's Alexa or Apple's Siri). Artificial intelligence (AI) now allows users to have "conversations" with their warehouse management systems or delivery tracking applications.

Blockchain ledgers for sharing data and tracking shipments

Blockchain has graduated from the pilot project stage and is now being deployed in real-world applications. Among the companies using blockchain are transport and logistics giant FedEx Corp. and container shipping company Maersk Line, which use the technology to verify that inventory has moved to or from their DCs, among other things.



Wearable technology for warehouse workers



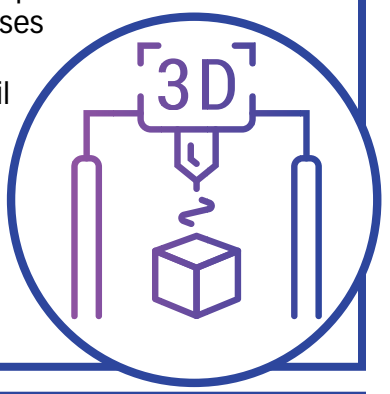
Mobile computers are already transforming the warehouse and DC work force, but why hold a device in your hand when you can wear it? DHL recently completed a pilot program using smartglasses in conjunction with a "vision picking" system from Picavi that superimposes picking instructions onto the worker's view of a rack or bin.

AMRs (autonomous mobile robots) that work in collaboration with humans

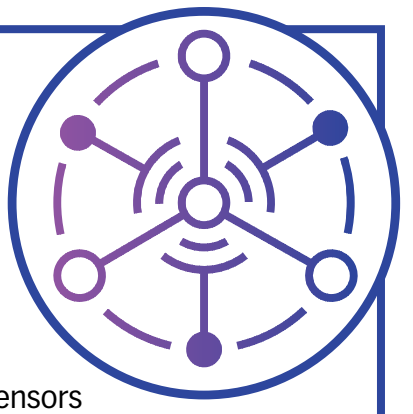
Robots are roaming today's warehouses, helping humans pick orders and transport goods. Companies that are using mobile bots to supplement their human work force include logistics service providers DB Schenker and Geodis as well as transportation and logistics services giant XPO.

3-D printing of spare parts

Why store slow-moving parts in your warehouse when you can 3-D print them on demand? UPS has partnered with SAP to offer a nationwide network of 3-D printers, and General Electric spent big money on a German company that makes the specialized printers. Use cases to date include airplane cocktail trays, structural plane parts, and a tugboat propeller.

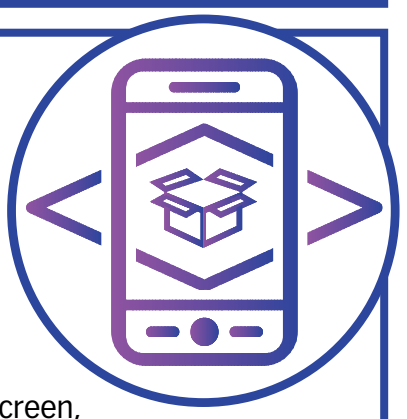


Internet of Things (IoT) networks



The digitized supply chain is fueled by data, and that information comes from sensors attached to containers, pallets, dock doors, chassis, bins, lift trucks, and a hundred other items. Look to tech providers like German software giant SAP SE or industrial heavyweight Honeywell International Inc. to provide software that can help make sense of it all.

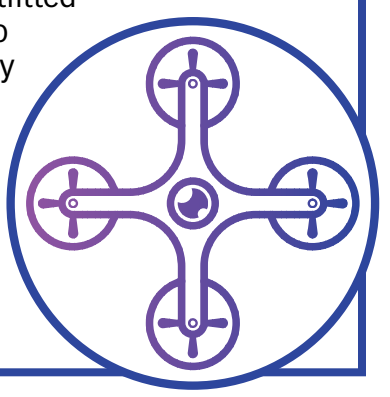
Augmented reality that enhances warehouse views



Keep an eye on your smartglass or smartphone screen, because augmented reality (AR) is popping up in many warehouses, overlaying real-world images with virtual images and text. The approach is paying off in jobs from manufacturing to maintenance to repair, thanks to AR tech providers like Upskill.

Drones that monitor property indoors and out

Drones may not yet make sense for last-mile parcel delivery, but they've been deployed successfully in a variety of warehouse applications. Contract logistics specialist DHL Supply Chain uses drones outfitted with cameras to conduct security checks, while UPS flies them inside its vast DCs to count inventory on high shelves.



Analytics that can predict problems and suggest fixes

What if you could forecast problems before they occurred? Turns out, there's software that can do that. Firms like ClearMetal Inc., Aera Technology, and LevaData now offer predictive analytics programs that deliver visibility into supply chain operations and predict outcomes, and then leverage prescriptive analytics to suggest solutions.