



# The Future of Work in Distribution

Practical applications to utilize now



## Overview

Automation, robotics, and artificial intelligence (AI) are transforming the way people work, where they work, and the skills they need to work — across all industries. In the logistics and distribution sector, what might have been considered the stuff of science fiction 20-plus years ago — automated self-driving truck fleets, AI-driven robots completing warehouse and picker tasks, and delivery drones — are now in the early stages of use.

What does this mean for the logistics and distribution industry and its workers? Although these technologies are making small inroads in the warehouse and the delivery process, people will continue to play a significant role in the distribution process.

In *The Future of Work Is Now*, a report on a global survey of 600 business leaders by Harvard Business Review Analytics Services, the results indicate that “robotics and artificial intelligence algorithms will increasingly handle the hard or repetitive tasks humans can’t or don’t want to do, while simultaneously equipping them with instant access to information and insights for the higher-value activities that remain.”<sup>1</sup>

The logistics and distribution industry, like others, is undergoing a digital transformation — in both logistics management and workforce management. This white paper examines how the industry can take advantage of the latest human capital management (HCM) technologies to implement practical applications today, not 10 or 20 years from now. These advanced technologies can help optimize employee engagement and productivity, support informed decision making, and create operational efficiencies.

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## Role of Technology in the Future of Work

Technology is embedded in the workplace across all industries, and its impact will only grow. Workers' view of technology in the workplace is mixed. In a 2019 ZipRecruiter Future of Work Report survey of more than 11,000 job seekers, 21% were concerned they could lose their job to AI, while 48% were concerned generally about AI eliminating jobs.<sup>2</sup>

Technology soon may provide better employment opportunities for those working in the logistics and distribution industry. A 2018 survey of 1,000 lower-income and middle-skills workers in 11 countries by Harvard Business School's Project on Managing the Future of Work found that a majority believe that automation and AI technology will have a positive impact on their future. They anticipate the technology will bring opportunities for higher wages and more interesting work as well as eliminate work considered "dirty, dangerous, and dull."<sup>3</sup>

Across all industries, "AI created about three times as many jobs as it destroyed in 2018," according to the ZipRecruiter Future of Work Report.<sup>4</sup>

## The Future of Technology in the Warehouse

While fully automated warehouses are years away, some distribution centers are utilizing technology to streamline operations and speed delivery of goods to customers. A handful of retailers are using drones to deliver inventory from their warehouses while some distribution centers are beginning to use mobile collaborative robots and mobile piece-picking robots, says Bob Trebilcock, who has written about the distribution industry for 30 years. He also is seeing warehouse automation technology with sensors that monitor system conditions and collect data, and software that optimizes operations.<sup>5</sup>

Despite these advances, automated warehouse technology is in its infancy, and its widespread adoption and benefits remain to be seen. HCM technology, on the other hand, can deliver significant benefits to the industry now through greater employee engagement and operational efficiencies.

## Distribution Industry Snapshot

While it's too early to predict how the distribution industry will look following the novel coronavirus pandemic, the long-term outlook is that more, not fewer, jobs will be created with the introduction of autonomous vehicles and robotic technologies.

## Increasing demand for warehouse workers

In January 2020, delivery and warehousing companies added 20,000 jobs to meet consumer demand for goods.<sup>6</sup> In March 2020, Amazon announced that it would be hiring 100,000 additional distribution workers to keep pace with increased online shopping during the COVID-19 outbreak.<sup>7</sup> In recent years, the Amazon effect also has increased consumer expectations about delivery: two-day delivery is the new norm, and next-day and same-day delivery are increasingly expected.

## Role of drivers now and in the future

In the distribution industry, autonomous delivery vehicles may be on the road sometime in the future, but drivers still will be needed at the start and end of routes for last-mile pickups and deliveries, to drive difficult nonhighway routes and in poor conditions such as snow, for gassing up vehicles, and for local-only deliveries.<sup>8</sup> In fact, the total number of trucking-related jobs will actually increase as technology and automation advance, says Alex Rodrigues, CEO of Embark.<sup>9</sup>

Growing e-commerce is increasing the demand for drivers. During the COVID-19 pandemic, consumers have turned to e-commerce for the delivery of goods to their homes as nonessential bricks-and-mortar stores closed or reduced their hours. The pandemic also has illustrated the key role that drivers and the distribution industry play in delivering fresh food, nonperishable food items, and paper products to grocery and big-box stores to keep up with consumer needs.

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## Costs of employee dissatisfaction and turnover

Considering that the average cost of replacing a warehouse employee can be \$7,000, about 25% of a typical warehouse worker salary (and some experts estimate the real cost to be 150% of salary),<sup>10</sup> retaining these employees should be a key focus of logistics organizations.

Retaining distribution employees, however, can be difficult if managers don't remember employees' preferred shifts when creating schedules. This can have a ripple effect if scheduled employees don't show up for an unplanned shift because of external conflicts they can't avoid. Finding replacements can be difficult, and coworkers then must pick up the slack, which can impact their job satisfaction and productivity as well as the timely delivery of goods to customers.

Advanced HCM technology can help logistics organizations overcome these challenges.

# HCM Technology in the Warehouse of Today

For most logistics organizations, the use of “sci-fi” technology in the warehouse and on the road is not immediately attainable. But there are readily available future-of-work technologies they can use now to overcome the challenges they face in attracting and retaining employees, realizing operational efficiencies, and making informed, data-driven decisions.

Advanced HCM technology solutions available in the modern cloud enable logistics organizations to work smarter through AI and machine learning (ML) functionalities that analyze data to improve forecasting accuracy and shift recommendations. Embedded analytics also provide real-time visibility into workforce and compliance issues so managers can respond quickly. And when workers and managers are empowered with consumer-grade mobile technology, they are more likely to be productive and engaged with their work.

## Optimize Employee Experience with Mobile Capabilities

Because 81% of Americans own a smartphone<sup>11</sup> and many use the technology for activities such as mobile banking and making purchases, they expect their work experience to mirror this same instant connectivity and ease of use. Using mobile technology in the warehouse enables improved employee and manager experiences.

“Two of the biggest trends in logistics technology right now are the use of mobile apps and artificial intelligence,” notes Dr. Scott Newton, vice president of Care Model Solutions at TeleTracking Technologies.<sup>12</sup>

Giving distribution industry employees access to an HCM mobile app enables them to view their schedules and pay information, check their accrual balances, and request time off on their mobile devices at the warehouse, from the comfort of home, and when they are on the go.

Mobile technology also has other uses in the warehouse, where it can improve the efficiency and accuracy of moving, selecting, tracking, and delivering goods. With many warehouse workers making numerous trips daily to a set area to print picking lists and shipping labels or enter shipping information into a computer, mobile technology can increase efficiency, productivity, and satisfaction. Warehouse workers can use mobile computers and rugged tablets to access and input information, mobile printers to print labels, and wearable mobile computers and bar code scanners to streamline picking, packing, sorting, and shipping.<sup>13</sup>



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**Dr. Scott Newton**  
VP of Care Model Solutions, TeleTracking Technologies

The time-saving, value-added functionality of mobile technology is designed to improve the employee experience, increase satisfaction, and deepen employee engagement — and, ultimately, reduce turnover.

Managers can use mobile technology while on the warehouse floor, driving improved productivity and enhanced engagement as they easily access data on a mobile device instead of needing to perform these functions in an office setting. They can use mobile functionality to approve time-off requests and shift changes, review scheduled reports and performance metrics, and make informed decisions based on real-time information. This enables them to manage more easily and frees them up to be more accessible to warehouse employees needing assistance.

The overall results are increased engagement of both employees and managers as well as improved workforce management and operational performance.

## Drive Intelligent Decision Making with Real-Time Analytics

Having timely access to analytics data doesn't require logistics companies to have data scientists on staff or managers to have special training in analytics. Employing an HCM solution with AI-powered analytics gives organizations real-time visibility into operational metrics and performance data, enabling distribution managers to manage intelligently in the moment. With analytics data at their fingertips, particularly with mobile devices, managers can more effectively manage employees to meet changing fulfillment and distribution demand.

### Gain productivity and labor cost insights

Who are your top performers? Where can they have the greatest impact? How much is labor really costing your organization? The answers to these questions can provide beneficial information to distribution warehouse managers wishing to optimize workforce productivity and better manage labor costs.

At least one-third of warehouses in the U.S., however, continue to operate using spreadsheets and paper-based processes, and of the two-thirds that use warehouse management systems to track inventory and coordinate order processing, some have not upgraded their solution in years.<sup>14</sup> What these organizations need is accurate information about their workforce and supply chain operations available at their fingertips.

Advanced HCM technology provides a comprehensive view of all labor activities —including time spent on specific projects, jobs, work orders, and other activities — giving managers real-time output performance data and insight into direct labor costs. They can track and improve performance standards, identify top performers and those needing improvement, drive operational efficiencies, and gain greater control of operational costs. In addition, the implementation of more automated processes in the warehouse reduces manual work and creates a better worker experience.

## Improve supply chain data-driven decisions

“The biggest trends in logistics technology are data analytics and big data analytics,” says Alexandra Zelanko, a marketer and technical writer at DDI Development, a software development company.<sup>15</sup>

“Companies are now using big data to anticipate busy periods, potential future supply shortage and other insights for making strategic decisions to improve their market positions and offer a significant competitive advantage over other counterparts,” she explains. “What’s more, over 90% of shippers and 3PL [third-party logistics] firms predict that data-driven decision-making is exceptionally vital to supply chain activities as the big data improves quality and performance by offering effective supply and demand forecast, inventory management, route optimization and efficient labor management, in turn boosting the growth of the global third-party logistics market.”<sup>16</sup>

## Leverage wearable technology

Use of wearable technology devices is growing, with MHI predicting that 70% of warehouses will be using these devices by 2023.<sup>17</sup> Some devices designed specifically for logistics workers track high-risk motions and deliver this data to a dashboard to help managers understand the safety risks that workers face so injuries can be reduced.<sup>18</sup> Other devices monitor warehouse workers’ vital signs to help prevent health issues such as exhaustion and heart attacks.<sup>19</sup>

In addition, wearable bar code scanners, biometric sensors, and voice-picking solutions can reduce manual warehouse work, improving workers’ quality of life and productivity.<sup>20</sup> By leveraging data from wearable technology, warehouse managers can access and input workforce and distribution data in real time. With this technology, they can see the latest product demand information and track the inventory of stored and distributed products.<sup>21</sup>

## Streamline fleet management

Big data analytics also provides benefits to the distribution industry through predictive maintenance and better fleet management, says Alex Bekker, head of the data analytics department at ScienceSoft.<sup>22</sup> This data enables warehouse fleet managers to appropriately plan for maintenance to keep trucks on the road to ensure the timely delivery of goods.



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**Alexandra Zelanko**  
Marketer and Technical Writer, DDI Development

# Create Operational Efficiencies Using Artificial Intelligence

AI and ML technologies are not the stuff of science fiction but are incorporated into HCM technologies the logistics industry can use now to align labor scheduling with demand to provide appropriate shift coverage. In fact, using ML to forecast demand has been shown to improve forecasting accuracy by 20%,<sup>23</sup> leading to labor cost savings from better alignment of the workforce and lower overtime. Having access to accurate labor forecasting information enables distribution center managers to appropriately plan for warehouse labor needs, especially as these needs change to meet market conditions and seasonal demand.

## AI and ML: Aligning scheduling with demand and preferences

Utilizing AI and ML to automate complex forecasting — based on demand, volume, seasonality, weather, and employee preferences — and automate scheduling can create best-fit schedules and provide appropriate shift coverage at the lowest cost. Leveraging an organization's labor and workforce management data, AI and ML technologies determine customer demand patterns and employee schedule preferences in order to automate creating schedules that align with demand.

Warehouse workers who are scheduled to work their preferred shifts are less apt to call out and create a ripple effect of managers scrambling to fill an open shift or coworkers struggling to pick up the slack. When schedules reflect employee shift preferences, which ML technology understands and incorporates into the scheduling process, employees are more likely to be on the job and engaged with their work when scheduled.

## Easier, faster shift swapping

AI enables employees to quickly find a perfect match for a shift swap while ensuring shift coverage, freeing managers from this time-consuming task. The technology knows which coworkers have the right qualifications to meet an employee's shift swap request and notifies only those workers of the open shift. AI shift-swap recommendations take into account an organization's work rules, while employees' shift preferences derived from ML help further define shift-swap opportunities.

## Streamlined work processes with open-platform functionality

Managers can access workforce management tasks — integration with teams, paid-time-off approval, and absence and overtime oversight — via real-time application programming interfaces (APIs) to meet industry-specific needs while working in other applications from technology partners such as Microsoft, Facebook, Google, and hundreds of others. With access to key applications from a single screen, managers save valuable time in completing workforce management tasks.



## Logistics Industry Poised to Exploit Digitization

“The logistics industry is one of the biggest industries that will profit most from the digital revolution in 2019,” says Mark Tuinier, who focuses on trends in AI and the “internet of things” at Beproger.<sup>24</sup>

“Think of (even) more efficient routes and the ability to anticipate sales by taking data points such as weather patterns into consideration,” he explains. “Datadriven decision making will not be a buzzword anymore, but something that happens on a weekly (if not daily) basis. The logistics industry will realize the potential they have in their own companies and are going to exploit it.”

### Improved workforce management user experience

Leveraging APIs, employees can interact with a virtual bot on their smartphones — asking about their day’s schedule — while managers can ask which employees are absent and who is approaching overtime, even when managers are on the front line in the warehouse.

### Better decisions with the internet of things

The internet of things enables logistics organizations to create real-time analytics and data visualizations and to connect devices and tracking tools so information is available in a single dashboard.

“Now that they have gathered the data, AI and analytics will give them the ability to make better decisions based on real data, not their gut ‘instinct,’” says David Armendariz, general manager of the information technology team at Lucas Group. “This is also not only about today, but how they operate long term: affecting business models and go-to-market strategies, thereby improving the experience of the shipper and carrier.”<sup>25</sup>

## Putting Future of Work Applications to Use Today

Logistics and distribution organizations don’t need to wait for futuristic technologies to realize wide-ranging operational benefits. By employing advanced HCM technologies now, they can utilize mobile technology to achieve productivity gains and enhanced employee engagement, leverage real-time analytics to support informed decision making, and use AI and ML technologies to optimize scheduling to both demand and worker preferences. For the logistics and distribution industry, the future of work is happening now.

Interested in learning more? Check out this [distribution customer story](#) to discover how an organization improved payroll accuracy, attendance tracking, and accrued time practices with its UKG solutions.

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## About UKG

At UKG (Ultimate Kronos Group), our purpose is people™. Built from a merger that created one of the largest cloud companies in the world, UKG believes organizations succeed when they focus on their people. As a leading global provider of HCM, payroll, HR service delivery, and workforce management solutions, UKG delivers award-winning Pro, Dimensions, and Ready solutions to help tens of thousands of organizations across geographies and in every industry drive better business outcomes, improve HR effectiveness, streamline the payroll process, and help make work a better, more connected experience for everyone. UKG has more than 12,000 employees around the globe and is known for an inclusive workplace culture. The company has earned numerous awards for culture, products, and services, including consecutive years on Fortune's *100 Best Companies to Work For* list. To learn more, visit [ukg.com](https://www.ukg.com).



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