



Help reduce operating costs

with robotic lift trucks

Warehouses are increasingly using robotic lift trucks to improve productivity. Seasoned managers might be inclined to assume that such significant efficiency gains must come at a steep price, but the truth is that robotic lift trucks actually help lower operating costs.

While investing in automation can seem like a large expense upfront, a combination of labor, maintenance and equipment savings means that robotic lift trucks can cut operating expenses by up to 70% – making them a very sound investment. And because an operation can begin by deploying just a single truck as proof of concept before making a larger investment, robotic lift trucks offer a lower cost of entry and greater scalability than industry leaders might expect.

This white paper examines the ways in which warehouses can not only justify an investment in robotic lift trucks through speedy ROI – but achieve meaningful savings.



Reallocating employees

Labor generally accounts for 50 to 70% of a company's warehousing budget, so it's important to use that limited, expensive resource wisely.

In today's environment, a severe labor shortage and high turnover all necessitate higher wages and competitive benefits in order to hire and retain employees. These conditions are driving operations to carefully evaluate how they utilize labor, allocating workers only for responsibilities that make the most productive use of their time and considering alternatives for lower-value, repetitive tasks.

In addition to rising wages, the constant cycle of hiring and retraining workers can further swell operating costs. Warehouse labor turnover rose to a new high of 59.5% annually according to the Bureau of Labor Statistics. With the Society for Human Resource Management pegging the average cost per hire at over \$4,000, warehouses replacing such a significant portion of chunk of their workforce exposes them to a significant financial burden outside of standard wages.

Against this backdrop, improving employee satisfaction and retention can help lower operating costs. Academic research shows that organizations augmented by automation technologies are 33% more likely to be "human friendly" workplaces, in which employees are 31% more productive. That's because robotics can relieve workers of the monotony of repetitive tasks that are abundant in supply chain environments, and instead focus on more rewarding, higher responsibility work.

And in the warehouse, deploying robotic lift trucks to handle time-consuming, repetitive moves and long hauls allows employers to reallocate employees to more value-added work. Enabling personnel to concentrate on more strategic work better equips them to remain focused and practice good judgment. And according to a Gallup study, organizations with better employee engagement achieve substantially better retention.

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Reducing mistakes

In today's high-turnover warehouse labor paradigm, operations commonly depend on less-experienced employees or those without a lot of experience at that specific site. Distracted or inexperienced lift truck operators may drive too fast, cut corners too sharply, or even drive through prohibited areas, which can lead to mistakes, damage and injuries. In contrast, robots follow programmed site-specific rules of the road such as maximum speed or minimum distance from pedestrians or objects.

What kind of cost do these incidents carry? In 2019, the cost of a single medically consulted injury was \$42,000, according to the [National Safety Council](#), and that does not include the cost of property damage. Impacts or mistakes may cause expensive damage to inventory, equipment or racking. The wrong pallet placement may require staff to stop and search for a missing pallet or delay delivery to a customer. To replace a damaged lift truck, companies often resort to renting or leasing a truck, which adds unplanned cost. In anticipation of frequent downtime, companies may even regularly carry lift trucks than necessary, adding additional units through lease, short-term rentals or outright purchase.



Return on investment

By reducing operating costs and improving productivity, robotic lift trucks can deliver a relatively quick return on investment, but that timeline naturally varies by operation. Several variables, such as the number of manual trucks replaced, robotic units purchased, operating hours and burdened labor rate, will greatly influence the calculation of and speed with which an operation can reasonably expect to achieve ROI.

Here are two typical examples of payback for robotic lift truck investments:

E-commerce warehouse automates vertical storage

A warehouse running three shifts, seven days a week is paying six full-time lift truck operators \$19 per hour to move pallets from the inbound receiving area to racking during every shift. By using nine Yale robotic reach trucks instead, the warehouse achieves full payback in 1.6 years. By the end of year two, the operation saves nearly \$400,000 in hourly labor costs alone.

Beverage distributor automates horizontal transport

A beverage distribution center runs two shifts, five days per week. Every shift, three full-time operators are paid \$19 per hour, plus two hours of overtime each week, to move final palletized loads from the end of the production line to an outbound staging or storage staging area. When four Yale robotic counterbalanced stacker trucks are used for these applications instead, the distributor sees full payback in just two years. After breaking even on their investment, the distributor saves \$246,000 per year in hourly labor costs, or nearly a half million dollars in two years.

Looking to the future

In both the short and long term, robotic lift trucks can provide significant cost savings related to labor, injuries, damage, and manual equipment fleets. However, ROI is not the only appeal of robotic trucks. Many leaders choose robotic lift trucks to hedge against long-term labor challenges and promote scalability without labor constraints and volatility. Converting to an autonomous labor force frees up workers and resources while fostering a predictable and productive operation. With the operational benefits and savings achieved through robotics, companies can focus on business growth and innovation.



For more information about reducing operating costs with robotic lift trucks, contact your **robotics expert at Yale.**