# Reducing costs with robotic forklifts

Think the efficiency gains carry a steep price? Robotic lift trucks can actually help lower costs up to 70%

**Yale**®
LIFT TRUCK TECHNOLOGIES

Today's best-in-class warehouse operations recognize they must invest in cutting-edge technological solutions in order to boost and maintain productivity. That investment can be optimized by working with an original equipment manufacturer (OEM) that is dedicated to innovation through extensive research and development (R&D) investment and technology partnerships that facilitate bringing the smartest solutions to market as quickly as possible.

This isn't the warehousing landscape of the past. Facilities are increasingly turning to automation and other technology to improve productivity. Investments in automation might seem cost-prohibitive given the upfront spending required, yet robotic lift trucks can actually help cut operating expenses by up to 70%. 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 fast ROI, but actually achieve meaningful savings.
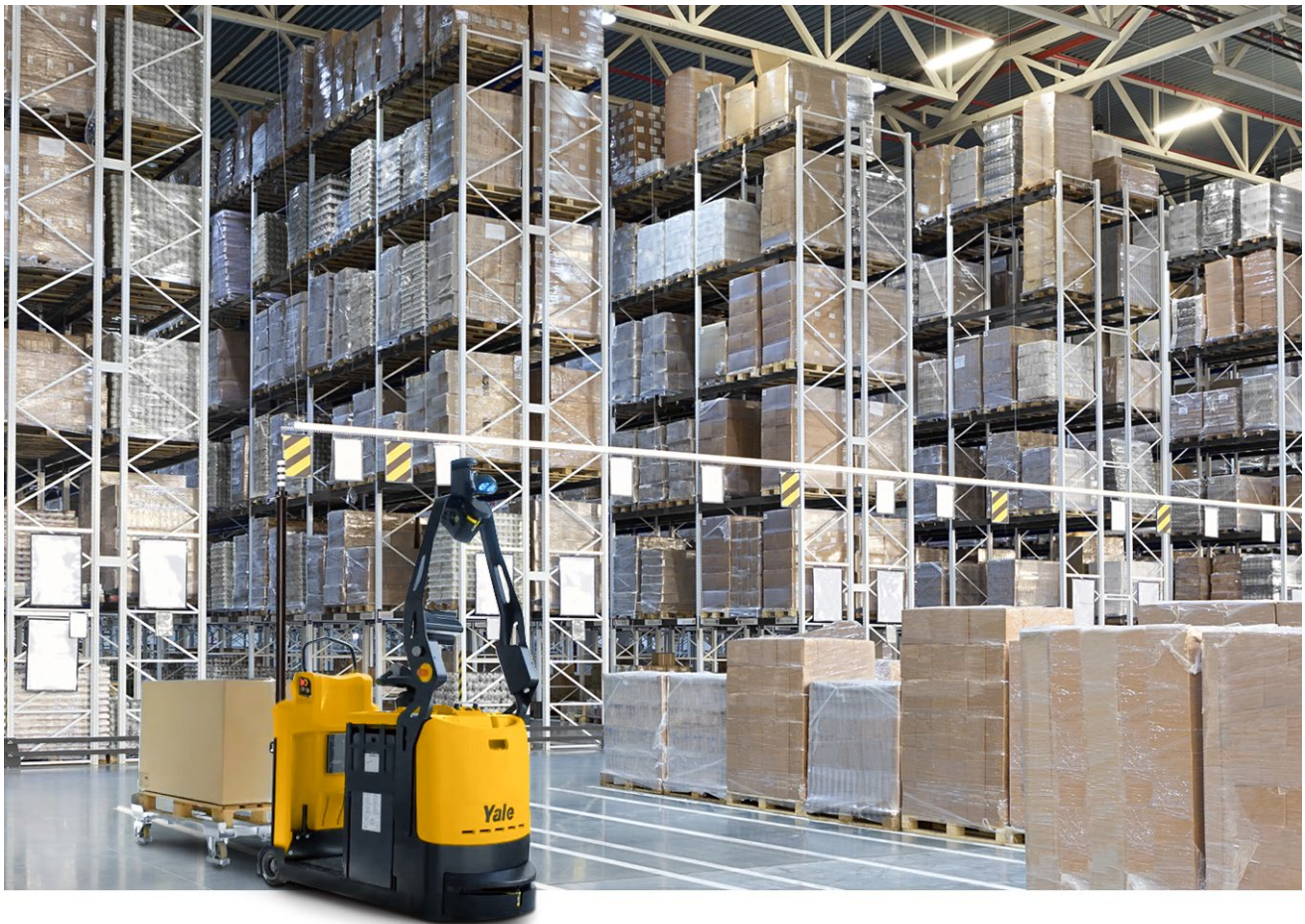
# Reallocating employees

When automating processes and calculating the associated payback, direct labor savings add up, with expenses like hourly wages, overtime and holiday pay. But automation drives savings in other indirect ways by drastically reducing costs associated with:

- Retraining and re-education
- Insurance
- Workers' compensation
- Lost time due to illness or injury

Labor generally accounts for 40 to 60% of a company's warehousing budget, so it's important to use that limited, expensive resource wisely. Equipment providers that prioritize technology integration and intuitive, hassle-free user experiences can make a vital positive contribution to that effort.



In today's warehousing environment, a severe labor shortage and high turnover require businesses to offer higher wages and competitive benefits in order to hire and retain employees. The constant cycle of hiring and retraining workers is a significant contributor to swelling operating costs. Warehouse labor turnover has risen to nearly 50% annually according to the Bureau of Labor Statistics. As a consequence of replacing such a sizable portion of their workforce, warehouses are exposed to a heavy financial burden even outside of standard wages, with one study pegging the average cost per hire at over $4,400.

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 allow them to focus on more rewarding, higher responsibility work. Specifically, within 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. According to a Gallup study, organizations with better employee engagement achieve substantially better retention.

## LABOR COSTS CAN ACCOUNT FOR 40-60% OF WAREHOUSING BUDGETS



Warehousing budget

Labor costs
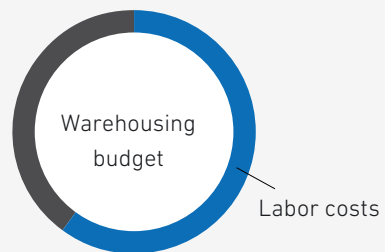
Do you have the technology to get the most out of your labor investment?

# Reducing mistakes

In today's high-turnover warehouse, operations commonly depend on less-experienced employees or workers without substantial experience at a specific site. Successful operations can't settle for this status quo within their labor force. 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. Compare the variety of risks inherent in a staffing model that relies exclusively on people with one augmented by technology, in which 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 incidents carry? In 2020, the cost per medically consulted injury was $44,000, 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 more lift trucks than necessary, adding additional units through lease, short-term rentals or outright purchase.

# Increasing productivity

Automation is a reliable solution to minimize the risk of costly downtime and unexpected delays. A robotic lift truck does not need to take time off, relentlessly working 24/7 and only stopping for battery replacement.

Introducing a robotic lift truck into a facility starts with walking the truck through the space to build a map and learn the main routes, storage aisles and other characteristics. The robotic software uses this information to find the most efficient routes and respond in real time to obstructions and shifting traffic volumes, converting to alternative paths as needed.

What a single truck sees can be shared with the rest of the robotic fleet. For example, if one robotic lift truck encounters a delay-causing obstruction, it can inform other units so they find alternate routes. Modern, infrastructure-free navigation and route planning intelligence enables robotic lift trucks to easily adapt to layout adjustments due to changing inventories and workflows. Efficient routes and coordination between robotic lift trucks also balances the flow of traffic, relieving congestion that causes unexpected delays and downstream issues like missed shipments.

# Achieving return on investment

By reducing operating costs and improving productivity, robotic lift trucks can deliver a relatively quick return on investment (ROI), though 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 influence calculation of the speed with which an operation can reasonably expect to achieve ROI. Here is a typical example of ROI for a robotic lift truck investment:

A beverage distribution center runs two shifts, five days per week. During 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 over 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.

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