



# JUSTIFYING THE COST OF YOUR AUTOMATION PROJECT

White Paper

# Does it Add Up? Justifying the Cost of Your Automation Project

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Over the past few decades, warehouse automation has become crucial to the efficiency and reliability of warehouse operations across the globe. The recent rapid growth of sales in the omni-channel marketplace has significantly affected warehousing operations, causing a heightened need for adaptable systems with increased capabilities and flexibility. As with all major capital investments, it is important to make a case to justify its cost.

## Site Conditions

When examining the cost savings of an automated warehouse, it is important to consider the site conditions of the warehouse. If the site of a new warehouse is landlocked, the automated system is advantageous because new buildings can be as high as 100+ feet, although, 40 to 80 feet is typical. For companies who are landlocked in an established location and are unable to purchase additional expansion property, building from the ground up might be the only option.

Today's modular systems make it possible to fit automated storage into an existing structure, even those with ceiling heights as low as 20 feet. If an existing building is





to be retrofitted with automation, the density of the warehouse can increase by 30 to 50 percent or more. Adding automation to existing operations significantly increases inventory storage density by maximizing the use of the building's footprint from floor to ceiling, freeing up floor space for more pallets and other material handling activities.

## Labor Requirements

Today distribution centers (DCs) are picking, packing and shipping a multitude of individual items with unpredictable demands. Experience has shown that DCs without an updated, modernized warehouse execution system (WES) operate at only 65 to 75 percent of traditional efficiency rates. Therefore, the implementation of a WES is imperative to seamlessly adapt to omni-channel fulfillment and increasing consumer demand.

Due to the complexity of today's evolving technology, there is now a need for a higher skilled workforce to manage automation. The industry is turning to millennial workers who were raised in the digital world to fill more positions within the warehouse. To attract these young workers, companies need to turn to automation that closely embodies the experiences these young workers can find on their smartphones, tablets or computers. These intelligent systems simplify routines by allowing workers to find information they need, when they need it, in a visually appealing way.

## Inventory Accuracy & Control

It's no secret that not having a handle on where your products are stored can have detrimental effects on your bottom line. Also, a lack of inventory knowledge can lead to customer dissatisfaction due to delayed shipments and/or partially filled orders due to lost inventory.

Typically, inventory accuracy levels that are 99 percent or higher are required to achieve world-class service levels and remain competitive. In order to do this, it is essential to invest in an automated technology like a WES.



If inventory accuracy fall below these levels it is near impossible to accurately predict or reduce stock levels, which often leads to out of stocks. Therefore, the inventory needed to maintain acceptable fill rates increases.

Companies have reported that the addition of a WES, has helped to reduced inventory levels by 10 percent, significantly reducing carrying costs, which can be nearly 18 percent the cost of the inventory.

## **Throughput and Equipment Shifts**

Depending on a warehouse's SKU velocities and the pace of current operations, a high-density automated warehouse system can optimize even standard-height warehouses. In conventional systems, throughput determines the staffing levels and the number of fork trucks required. However, automated systems can significantly increase throughput without increasing staffing levels as a single storage and retrieval machine (S/RM) is usually capable of handling between 60 to 70 unit loads per hour.

It is also important to determine the number of shifts per day that your equipment is running. Automated systems typically require a two-shift operating period, so justifying automated systems for single-shift operations is often a challenge.

## **The Known vs. Unknown Costs**

Practicing effective picking strategies is one of the most cost effective ways to maximize productivity and improve order accuracy. When used correctly, a WES helps manage the movement and storage of inventory within a warehouse to minimize hidden costs and can affect business success and revenue. Next to labor costs, travel time is the most expensive cost in any warehouse operation. It is important to make sure that employees are constantly active on the floor, the equipment is always full and travel time across the warehouse is minimized.

To maximize the use of a warehouses available square footage and cube space, it is import to slot the placement of products to optimize storage and picking efficiency and reduce handling costs. This practice results in reduced travel across the warehouse, stabilized



loads, fewer accidents and less product damage.

Additionally, inventory management can help companies increase profitability by 20 to 50 percent. Whether it is through bar codes or radio frequency identification (RFID), it is important to track and record products as soon as they are received in the warehouse. An advanced level of transaction history can help warehouses significantly improve visibility and reduce fulfillment errors. This data can be directly integrated with a WES in real time to ensure better inventory counts and audits.

Transaction history is extremely important in warehouses with perishable items. To avoid having to throw away expired items, it is important to not only know the location of each SKU, but also their expiration dates. A WES helps control the shipment and placement of these products so that the item with the closest expiration date is picked before an item with a later date to avoid a loss of inventory.

## **Return on Investment**

While there are several financial tools commonly used to justify capital expenditures, the payback method is the most common method of calculating return on investment (ROI). This is the time required for the amount invested in an asset to be repaid, or balanced out, by the net cash flow generated by the system—investments with shorter payback periods are typically considered better investments. However, this method rarely accounts for the time value of money. By calculating the ROI of an automated system using cash flow projections and capital budgeting forecasts, you will be able to see the abundant benefits to your warehouse production.

In addition to cost comparisons, once you add in the benefit of the longevity of the system, the investment is more than validated. Many automated systems can be operational for 25 years or more before needing to be replaced. With easy access to online calculation tools, it is extremely easy to determine the Net Present Value (NPV) and the Internal Rate of Return (IRR) of your investment. These figures should indicate if there is an appreciable justification for the initial cost difference associated with installing an automated storage and retrieval system (AS/RS), versus building a conventional system. Before deciding, it is important to compare both of these systems by establishing cash flow differentials and then apply the cost differential to the cash flow benefits.

## Conclusion

It is obvious that automating your warehouse can lead to numerous benefits not found with conventional systems. Not only will you make better use of your cube space and reduce your overall building footprint, you will also increase productivity, inventory accuracy and control, enhance your workforce and minimize product waste. When compared to conventional systems, warehouse automation has a lifespan of more than 25 years and can often yield ROI in five years or less. The benefits of an automated warehouse will poise you for profit potential and cost savings for many years to come. ■

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