

ACHIEVING HIGH RETURNS THROUGH A PARTIAL-AUTOMATION STRATEGY

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Warehouse automation is often viewed as being cost-effective in large volume facilities. Although full warehouse automation can deliver significant returns for high-volume tasks, the high investment costs of such systems entail that many small and medium-sized enterprises do not have the financial funding, or high enough volumes that would support the investments. So, does this mean that smaller enterprises cannot leverage automation in their warehouses?

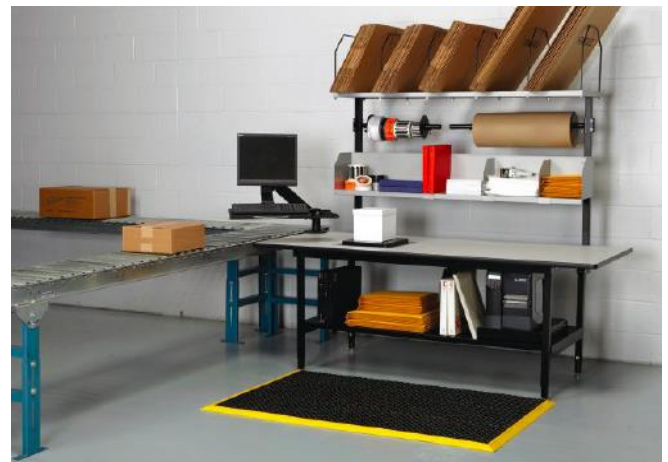
Warehouse operations tend to be labor-intensive as a great number of items are handled in large facilities. It is repetitive and causing poor ergonomics for the warehouse workforce. For these reasons, warehousing systems and processes are key candidates for automation.

Along with increased volumes, enterprises have to consider improving their operations through automation. One of the warehouse processes where automation is of paramount interest is the packing process. Distribution centers are increasingly re-evaluating the importance of their packing areas. Companies are realizing that poor packing station design will turn the packing process into a bottleneck and that the workstations must be properly integrated into the warehouse facility and its flows. Today, it is possible to buy a machine for almost every packing task. When determining which packing activities to handle manually and which to automate, volume and speed requirements must be reviewed. There need to be high enough volumes to justify the cost of equipment. The complexity of products also comes into play.

The benefits of warehouse automation vary with each use case, including increased throughput, improved ergonomics for the warehouse staff and higher customer service levels. Although warehouse automation can provide many advantages, it also faces challenges. The decision to automate a warehouse is viewed as a strategic decision that will have a long-term impact on the facility. In some cases, automation results in a decrease in flexibility

as some processes, once automated, become more difficult to change. A larger product assortment with a high variety in product characteristics can make it more difficult to take advantage of warehouse automation as solutions are often sensitive to changes in product characteristics and size. Considering this, every warehouse might not be able to take leverage of a full automation strategy.

A partial-automation strategy that is common involves integrating technology such as A/SS, weighing scales and conveyors with the existing WMS. Standalone processes can be optimized, for example by installing a conveyor in a key area, without having to re-engineer the entire warehouse operations. Partial automation will also be less costly to implement and ensure flexibility. Hence, a partial-automation strategy could be used by small- and medium-sized firms that have a variable product assortment and aim to ensure process flexibility.



In a case study conducted at a spare parts distribution center, it was found that the process time for packing could be cut by 42 percent by the installment of conveyors and other modifications not relying on automation technologies. This inevitably shows that high returns can be achieved for low costs without the need of re-engineering the entire warehouse and shift to fully automated processes.