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Thought Leaders Discussion on Sortation Systems for Distribution

SCDigest's Cliff Holste on Keys to Success

SCDigest Editorial Staff

SCDigest editor Dan Gilmore recently interviewed Materials Handling Editor Cliff Holste, who has more than 30 years of experience in materials handling systems, especially automated sortation, on the keys to successful implementation of sortation systems in distribution.

Gilmore: What are some of the first things a company needs to consider if it decides it needs a sortation system in its DC?

Holste: I think there are a number of issues that need to be considered at the outset. For example:

- Is manual sorting (utilizing a recirculating conveyor loop) a possibility, or do capacity/ operational requirements dictate automatic sortation? The manual sorting option, of course, is only for low volume operations.
- If automation is required – are the cartons conveyable and do they already contain a unique bar code identifier?
- Do you have the internal resources to develop the plans and specifications and handle the purchasing and project management phase of the project, or will you need to obtain outside assistance?
- When you include the cost of the various subsystems that are required to feed and takeaway product to and from an automatic sorter, even the most basic entry level system will require an investment approaching $750,000 to a million dollars or more. Obviously, costs can increase from there. Have you developed a project budget, and understand how it is going to be cost justified?
- Determine basic system capacity requirements - what will the sorter need to handle and at what rate?

No matter how unique and specialized your operation may be, the chances are very good that there is a company (probably a competitor) doing something very similar and already enjoying the benefits of automated sorting.

Other things are important, such as determining an overall rough initial system layout, and beginning to think about changeover plans from the old system to the new one, but these things come after these basic questions are answered.

Gilmore: When you've seen companies struggle to get their sorting projects right, what are the main reasons that the system fails to meet expectations?

Holste: In situations where system performance is poor, it's generally due to insufficient overall system planning in the concepting and budgeting phase, which can then lead to overlooking important functions and requirements. For instance, in an automated sorting system, having accurate and timely replenishment of inventory in active pick locations is critical to maintaining sorting system performance and customer service levels. If you don't get that right, which is a process outside of the sortation system itself, sorter system performance will suffer or even be considered a failure.

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Another example of poor planning might be in failing to appropriately design in after-sort handling and shipping capacity, which can then lead to excessive system backups and shutdowns.

Gilmore: Some companies worry that a sortation system won't be flexible enough to meet future needs, as conditions change. What are the keys to designing a system that has enough flexibility?

Holste: There are several types of sorters available covering a wide range of incremental capacities. Before selecting a sorter, determine what your current capacity requirements are, then add for growth. The sorter may run initially at a rate well below its maximum design speed and then be increased as throughput demands rise. A typical sorter, operating single shift with normal preventative maintenance, will last 10 to 15 years, and even then it can be refurbished and/or reused in a new location.

You have to be sure that the system layout allows for expansion to the picking system (by increasing the picking locations and/or number of pick modules) and the shipping system (by adding more sort locations). However, special attention needs to be given to the location of the sorter induction area, as this is often the most complex part of the system and its location should be considered permanent.
Understand how changes in products, SKU mix, order profiles, and customer demands for value added services will affect the future system operations. Have a plan or strategy worked out for dealing with them before finalizing the system layout.

Gilmore: I know it varies, but at a high level, what sort of throughput improvements do companies typically achieve when moving to automated sortation?

Holste: If a non-automated distribution center is picking and shipping 10,000 cases in 8 hours, which is about the minimum required to justify automatic sortation, and they install even the lowest level pop-up belt sorter, they can expect a yield of 20,000 cases in 8 hours. The next step-up in automated sorter capacity will get you into the 40-50,000 case range. My best guess is that an increase in throughput capacity of 2 to 3 times would be typical while providing a reasonable ROI.

Gilmore: If you had to offer a few words of advice for companies investigating whether sortation was right for them, what would it be?

Holste: The quality of sorting equipment, scanners, PC/PLC controls, and conveyor system design being offered today is at its highest level. It's rare to hear a horror story anymore. Standardization of equipment design and decades of industry experience have virtually eliminated trial and error methods.

No matter how unique and specialized your operation may be, the chances are very good that there is a company (probably a competitor) doing something very similar and already enjoying the benefits of automated sorting. That being said, there is no "one-size-fits-all," or "out-of-the-box" approach to sorting system design. The proper, most cost effective system solution for your operation will evolve from a thorough analysis of your business data and specific distribution requirements. Shortcutting this crucial planning process may result in not being able to receive the full potential from your investment.