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Managing people, materials and costs in the warehouse and DC

From the Golden Zone

Flexibility in material handling systems is crucial for your DC

By Keith Swiednicki

In today's fast-changing distribution world, flexible design has emerged as a great paradox. On the one hand, flexibility in material handling is critical to ongoing operational success. On the other, there are a number of barriers to building flexibility into your system.

It's a tricky balancing act, one that requires accurately projecting volume growth and product variability, with an eye to keeping your options open — and providing the best solution for today's needs.

Supply chain execution demands a design that best facilitates speedy, timely, accurate delivery with an emphasis on the "perfect order." This results in distribution centers designed for velocity, with higher-volume items located at the beginning of the order picking path.

For maximum efficiency, warehouses are re-slotted on an ongoing basis. Some operations are so keen to cut travel time and maintain high productivity that they might constantly monitor the movement, cube, and velocity of items and rearrange them on almost a weekly basis.

Order picking is one of the most important processes to optimize since it is the most labor intensive activity that goes on in a DC. It's where you run the greatest risk of bottlenecks and pick-pack slowdowns.

Re-slotting inventory at regular intervals — locating stock items to reduce travel time

and increase velocity — goes a long way toward improving facility efficiency. Compare an efficiently slotted warehouse with an inefficient one, and you could see a 25 percent to 30 percent difference in labor productivity.

When it comes to efforts to derive further efficiencies from automated and mechanical equipment, one of the most important considerations is building flexibility into the system.

Before forging ahead, assess your current physical distribution infrastructure and operations. This includes examining the existing operations as well as buildings and sites to identify constraints, capacities, and opportunities. Very often an operations audit conducted prior to implementation of any new initiatives will result in significant cost savings and productivity increases.

When KOM conducts an audit, we analyze 52 weeks of order flow history to get a sense of item movement over time. We capture information on sales of units, pieces, cases, and pallets to identify the volume and item peaks and valleys. This provides an irrefutable portrait of what kind of pressures a facility experiences during the year.

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In addition to order history, KOM looks at the company's individual customer order files to see whether orders typically comprise one line item, 100 line items, or 1,000 line items. Most warehouses are a hybrid of two order types — large and small. You attack them differently. Large orders get picked conventionally while smaller items might get picked to totes.

The real gains have been made in the area of the capture, transfer, and processing of information — not only in the quantity and availability, but the incredible speed of handling. The physical materials handling equipment has evolved to keep pace with the speed of information capture and demand for faster order fulfillment response times.

With electronic information transfer, and particularly the accessibility offered by the Internet, the individual consumer and business customer now expect total transparency regarding product availability and delivery schedules.

Businesses face orders arriving from many different sources, all electronically. Strategies have been implemented to process and re-direct these orders almost immediately to the most effective location for fulfillment.

Not only has the physical materials handling equipment evolved to keep pace with the speed of information capture and demand for faster order fulfillment cycles, but so has the communication with these devices and steps taken to integrate them into a complete system providing as much flexibility as possible. Today, many companies are taking a second look at automated methods of receiving and selecting as a way of improving efficiencies.

Despite the importance of flexibility, most systems simply aren't built to adapt quickly. This is

because many companies are dealing with the requirements of the day-to-day, and they don't have the time to look to the future when solving the problems of today. Not to mention that uncertainty in the direction or growth of most businesses can make it difficult to come up with firm projections. Markets, technology, and a competitive landscape in constant flux lead to greater difficulty in making future projections.

Regardless of the reasons built-in flexibility is lacking, it's one of the most effective ways to address changing requirements as they emerge, and emerge they will for the only real constant is change.

Flexibility can be built into your material handling system from the ground up in a number of ways. Here are four areas to look at:

- For the building, choose the right site, build column bays to provide for multiple layout options, and build to a clear height.
- For the racking, design a structure that allows for flexibility so that you can move from single deep to double deep without changing the structure.
- For the shelving, allow for future levels of shelving units to be added to the original design.
- For the numbering system, design to accommodate item proliferation.

If the original design is done well, then a retrofit down the road is of course much easier.

Regardless, it's possible to retrofit to build in flexibility.

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