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Order and SKU Velocity Profiling is Key to Picking System Design and Technology

Order Picking Systems Decisions Are Closely Tied To Location And Storage Mode Decisions, Says Cliff Holste

SCDigest Editorial Staff

There are a wide range of potential picking system options, from manual, paper-based systems to highly automated approaches.

So how do you select which option(s) are right for you? For many companies, the question is: where do you begin? The smart answer for most companies: SKU and order activity profiling.

What is Activity Profiling?

The process of gathering and analyzing data is about both order profiles (orders per day/shift, lines per order, items per line, etc.) and individual SKU activity (volumes, breakdown by unit of measure, etc.).

Let's state right up front that although order and SKU profiling is key to order picking system design and technology selection, few companies seem to have the data readily available, even in this age of ERP, WMS, data warehouses and other software systems, which one would think would contain the required information. In some cases, the data is available or largely available, but is in different software systems. The data from these different sources must be merged. In other cases, key data is not available or is very hard to get at. Examples of the former might include product dimensions and weight; examples of the latter might include order line detail, which can be obtained but only after a decent effort by the IT department to massage archived data.

In all cases, companies must carefully look at both what data is available and how accurate that data is.

Data Needed for Picking System Design

According to **Cliff Holste**, SCDigest's Material Handling System Editor, to determine order picking strategies and technologies, companies need to obtain and analyze the following types of data:

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- Order mix distribution (family mix, handling unit, order increment)
- Lines per order distribution
- Cube per order distribution
- Lines and cube per order distribution

Analysis should, in part, develop a SKU velocity profile, similar to the chart above. The analysis will then also typically involve breaking this data down into movement by different handling/ picking units, such as full pallet, full case and split case volumes.

The next step is an iterative process, and is constrained by many factors, especially if the analysis is for an existing building rather than a "green field site." It may also be that a company wants to look only at one area, such as piece picking. A comprehensive analysis will include both analyzing at where some group of products (such as the Very Fast full case movers) will be stored, in what type

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Example SKU Velocity Profile

Velocity Profile	# of SKUs	Percent	Order Lines	Percent
A - Very Fast	711	5.7%	1,728,000	54.0%
B - Fast	1,834	14.7%	940,800	29.4%
C - Medium	2,969	23.8%	384,000	12.0%
D - Slow	4,641	37.2%	147,200	4.6%
F - Dead/Obsolete	2,320	18.6%	0	0.0%
Totals	**12,475**	**100.0%**	**3,200,000**	**100%**

of storage mode (e.g., double deep pallet flow rack, half pallet, etc.) and what picking strategy/technology will be used (voice or RF pick to truck, pick by label, voice or RF pick-to-belt, pick-to-light, etc.).

The analysis can get very sophisticated; for example, in some businesses it makes sense to look at items that are almost always ordered as single line items, and store those in a separate area of the DC. It can also pay to look at SKU/Order relationships – a relatively slow moving SKU might make sense to store in the high-velocity area if when it is ordered it almost always is ordered with a Category A product.

The Key Points

- Order picking systems decisions are closely tied to location and storage mode decisions.
- Different order picking technologies are best suited to SKU velocity profiles for a given unit of measure.
- Different order picking technology investments will have different ROI depending on the level of activity within a pick zone. SKU and order activity profiling is essential to optimizing these decisions.