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DISTRIBUTION AND MATERIALS HANDLING FOCUS

Time Now to Relook at SKU and Activity Profiles in the Distribution Center

SCDigest Editorial Staff

For many companies, order profiles and demand patterns have changed – often dramatically. This is the result of several factors, most notably of course the impact of the global recession, which caused a significant drop in overall demand for many companies, a change in "mix" (with many customers migrating to lower prices goods), and in many cases companies combining underused distribution facilities.

In these or other circumstances, it is likely time for a SKU and activity profiling effort to get back on top of what is happening in the distribution center. Always a good idea as a way to regularly optimize DC performance, SKU and activity profiling likely an important exercise to go through now to ensure DC strategy is aligned with operational dynamics, which are likely different than they were 1-2 years ago.

SKU and activity profiling is also key to selecting the right approaches and technology support for order picking, which often drives 50% or more of a company's DC labor costs. If distribution facilities have been consolidated or the mission of a given DC changed, it might be time to relook at order picking strategy.

What is Activity Profiling?

SKU and activity profiling is 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.).

Although order and SKU profiling is key to consistently re-optimizing DC design and processes, few companies seem to have the data readily available, even in this age of ERP, WMS, data warehouses and other software systems. 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 Order 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:

- 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 on page 2.

The analysis will then also typically involve breaking this data down into movement volumes by different handling/ picking units, such as full pallet, full case and split case activity.

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

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%**

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 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.

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"You should probably do SKU and activity profiling at least annually even in "normal" times," says Holste. "Coming out of this recession and unprecedented changes in consumer demand and how specific DCs operate, it especially critical right now.