WHITE PAPER

Design Distribution Centers for

Profitability with SKU Profiling



FORTE

Make Distribution Your FORTE

Understanding how every SKU carried in your distribution center (DC) can — and should — contribute to your company's bottom line — is the best way to design and run DC operations. Here's why:

Each SKU has a potential cost impact that goes well beyond its actual purchase price. The decisions surrounding whether a SKU should be stocked and where, and in what status it is to be held in the supply chain, impact the profitability of your company. And from a selfish standpoint, these same decisions, made without sufficient evaluation, can rob your distribution center of capacity and efficiency.

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Justify Its Existence: Does Each SKU Belong in Your DC?

Even with a generally stronger economy, many companies continue to operate with reduced staff as a way to control costs and manage in a tighter labor market. Distribution center managers are expected to do more with less. These factors make it imperative that DCs stock only the SKUs that are profitable or have strategic value. Otherwise, companies incur unnecessary costs for labor and oversizing of DC buildings and equipment.

The process starts with a strategic review of the products to be stocked. A cross-functional team, consisting of marketing/merchandising, sales, finance/accounting and supply chain experts, should be formed to evaluate the effectiveness of entire product categories as well as individual SKUs within each category. The collective experience of the team should be capable of providing all of the information needed to answer the four crucial questions:

- ***How important is the SKU to our business?***
- ***Is the SKU strategic?***
- ***Is the SKU profitable?***
- ***Why should we carry the SKU?***

A moderator/facilitator should be assigned to lead the cross-functional team to maintain focus, to ensure that all parties have sufficient input and opportunity for feedback and to summarize the information derived from the evaluation. It's naïve to expect this team to reach all of the relevant rationalization decisions, since there is almost certain to be conflicting motivation among the team members. For example, the sales organization in most companies desires more product categories and full lines within each category. Finance and accounting often want to limit the number of product categories and eliminate unprofitable categories and SKUs. The actual decisions reached after the SKU rationalization exercise would typically be made at the senior-executive level with CEO oversight.

You are not alone in the search for lower DC operating costs. Nine of 10 companies took action in 2014[1] to trim expenses through the following measures:

- ***68% warehouse processes***
- ***60% inventory control***
- ***49% rack/DC layout configuration***

At the same time, companies are willing to invest in distribution centers to address multichannel sales growth.[2] In a simpler era, when DCs processed large wholesale/retail fulfillment orders, companies expanded capacity by hiring more employees, adding shifts in existing DCs and by constructing or leasing buildings. Companies could afford to meet demand by carrying every SKU regardless of how frequently an item sold.

Growth today is more dynamic across wholesale, retail and e-commerce channels. Generally, orders are much smaller and more frequent. Companies that succeed commit to spending on DC buildings, equipment and labor based on how to best fulfill orders for the most-demanded products. These companies are likely to add IT investment in warehouse management systems (WMS) and automated material handling equipment but only after determining what's needed in the DC to handle top-selling SKUs or SKUs deemed to have brand value.

The SKUs relevant in the marketplace today can quickly change tomorrow, which is why the SKUs carried and where they're slotted must continually evolve based on the SKU's financial impact on the company. SKU profiling, when conducted in this context, becomes a powerful tool for DC managers and their operations or supply chain senior management.

Why Are You Keeping That SKU?

Whether a SKU should be stocked in your distribution center can be determined by answering these seven questions:

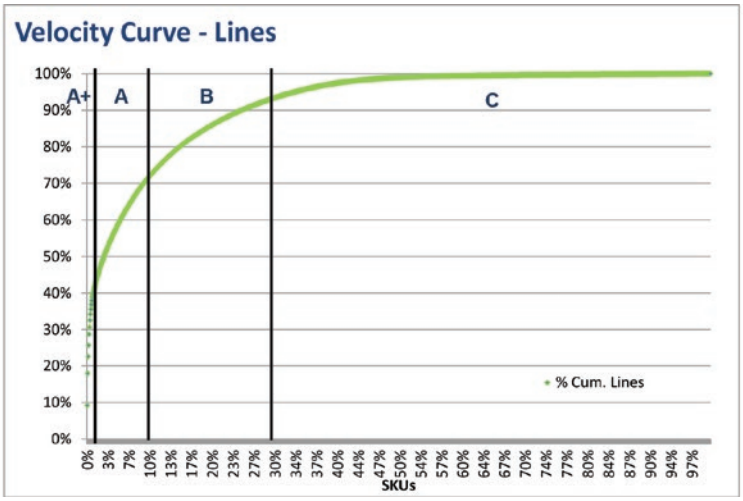
1. How often is the SKU needed?
2. Is the SKU required to complete a product line?
3. Does the SKU meet your ROI criteria?
4. Is there strategic value in keeping the SKU?
5. Should the SKU be stocked or special ordered?
6. What stocking level would be appropriate, assuming the SKU is carried?
7. Does the SKU need to be available in each DC, some DCs or one centralized location?

Learn the ABCs of SKUs: Segment by Velocity

Once you decide there's a business case for carrying a SKU, profiling can be used to determine the best configuration of the distribution center layout and slotting. The design should be based on the popularity of each SKU, the storage and handling characteristics of each SKU, and how customers order the SKU, including quantity and frequency.

Buyers have become accustomed to making smaller purchases more frequently. Even as the economy has rebounded, consumers more tightly control their spending. As a result, DC operators need to be faster and more flexible. Instead of one larger order to pick for a store or another warehouse, DCs now ship countless small orders to individuals around the world.

This change makes slotting by velocity imperative. Ensure that fast-moving SKUs are placed in easy-to-reach areas to minimize pick times. Time spent by pickers to travel around a DC has three times the impact on performance compared to time spent by pickers to search for and select items.[3]



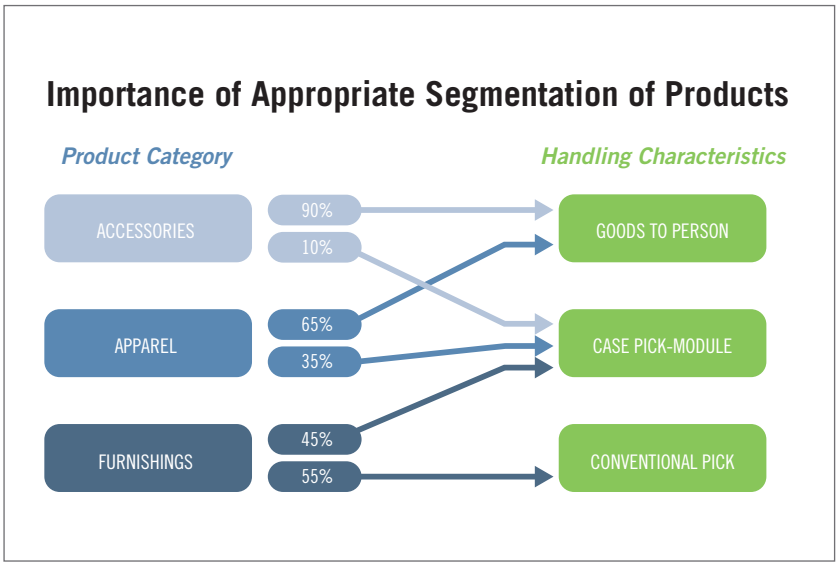
Small number of SKUs generate most picking: *The most activity in your distribution center will come from a relatively few SKUs.*

Use sales and shipping data from your enterprise resource planning (ERP) system and WMS to identify the popularity of SKUs and segment them into groups (A, B, C, D, E) in descending order based on their activity. This analysis can help you determine locations for where to slot SKUs, how to organize your DC golden or hot zones, and ways to avoid bottlenecks.

One note of caution: Fast-moving items should be easy to pick but may have to be spread out to minimize congestion. Putting all of your fast movers into one hot zone can actually hinder your pickers.

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The analysis performed on the popularity of SKUs also provides the basis for identifying candidates for automation, such as goods-to-person systems, light or voice technology and/or pick modules. Various options for automation are more appropriate for different velocity segments and products within certain dimensional/weight and handling characteristics.



Breakdown of handling characteristics according to specific product category.

The growth many companies are experiencing in online sales also can degrade storage and labor efficiency, because of the ways SKUs have traditionally been carried in distribution centers.

Handling Characteristics: Not Just for Cars

In 2014, 34 percent of companies serviced an e-commerce channel, up from 30 percent the previous year.[4] Despite that shift, many companies continue to operate with inventory for each channel physically separated within its DC(s). Other companies operate separate DCs for brick-and-mortar sales and DCs dedicated to online or mobile sales. These methods lead to SKUs being handled multiple times as they are moved back and forth within DCs or among the DCs to maintain sufficient inventory to fulfill orders for each channel.

Consideration should be given to eliminating or reducing the physical segmentation of inventory, replacing the actual separation with virtual inventory buckets. This approach stops the need to physically touch and move product to maintain appropriate inventory levels for each business channel.

Additional consideration should focus on the best ways to handle each SKU based on its dimensions, shape, weight and other characteristics, such as those noted below:

- ***Packaging – whether it requires overpacking or not***
- ***Potential theft***
- ***Hazardous/aerosol/flammable/corrosive/explosive***
- ***"Conveyability"***

Next, determine what's needed to deal with each SKU:

- ***Special infrastructure for characteristics (safety equipment for hazardous materials; cages to safeguard high-value items)***
- ***Appropriate pick location for each type and size of SKU***
- ***Stock in proximity to other SKUs that frequently ship together, regardless of varying velocity class (for example, all sizes of a particular style/pattern for a blouse)***

The decisions reached regarding how products are handled have a dramatic impact on the performance levels achieved in your distribution center, as evidenced by the following example.

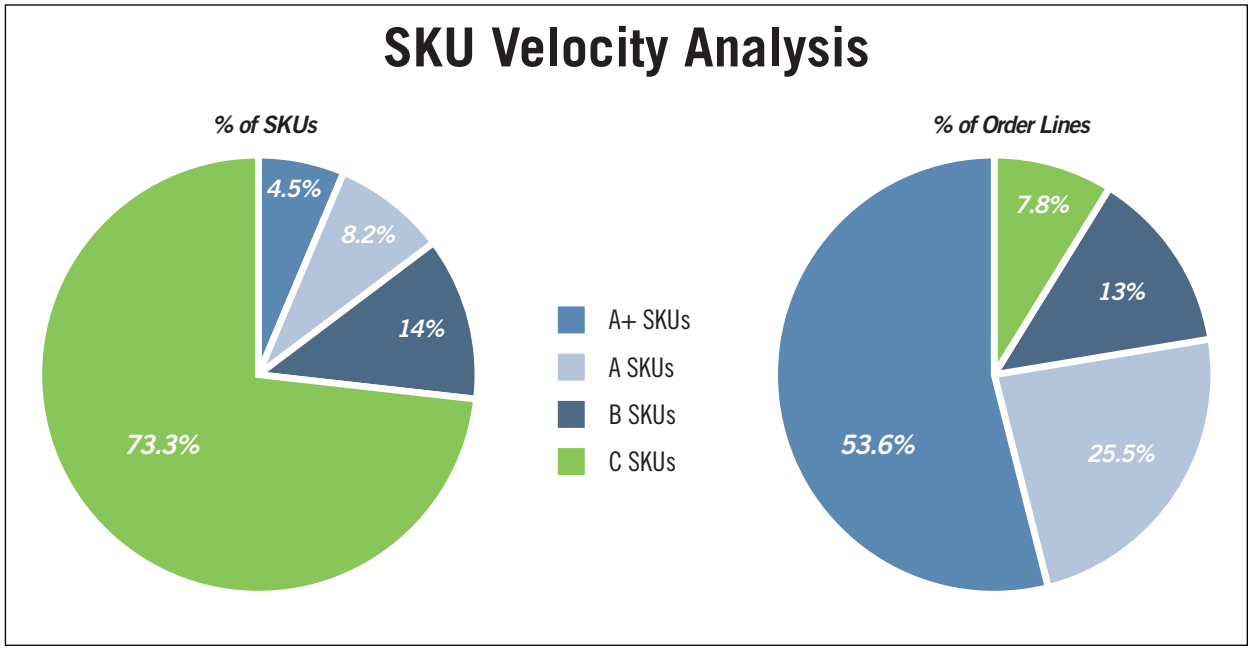
An American manufacturer of plumbing fixtures and parts slotted its DC by product categories. The company stored bathtubs with bathtubs, faucets with faucets, and service parts with other service parts. That's the way this company organized all of its operations, so warehousing and fulfillment were set up to conveniently match. The approach worked for years, but the distribution center became increasingly inefficient as the number of SKUs and sales volume grew.

Slotting by product categories limited this manufacturer to pick only 40 to 50 lines an hour. Facing competitive pressures and the need to reduce operating costs, the company began rethinking this approach and considered a redesign of the distribution center based on SKU profiles instead of product categories. The company prioritized slotting according to attributes such as velocity, dimensions and weight, conveyability and whether or not the item required overpacking prior to being palletized and/or shipped instead of by its internal product categories.

The analysis enabled this manufacturer to intelligently assign SKUs to different levels and types of automation, ranging from:

- Manual picking from shelves
- Carton flow and pallets for low-velocity and large products
- Highly automated pick-to-conveyor with shipping sorter for high-velocity case items
- Goods-to-person equipment for higher-velocity, small items to be overpacked prior to shipping

The result: a three to five times increase in pick productivity for more than 75 percent of the units handled in the DC.



Carefully evaluate SKU stocking and picking to determine how they contribute to the bottom line and brand value.
A+ SKUS: 4.5% of the SKUs drive more than half of the lines picked; focus on highly efficient pick/replenishment processes for these items
C SKUs: 73% of the SKUs represent less than 8% of the lines picked; ensure these items do not interfere with picking of higher velocity items

Three Mistakes Companies Make and How to Avoid Them

Distribution centers are complicated due to the sheer number of SKUs, automation equipment and technology needed to slot and pick, and the ever-quickening pace of fulfillment expectations. In the rush to manage day-to-day operations, it's easy to overlook steps that can yield real reductions in labor costs and improve overall DC performance.

Companies often make three common mistakes in their distribution centers:

1. ***Skipping the upfront analysis of whether a SKU belongs in their DC***
2. ***Carrying SKUs because "we've always done it that way"***
3. ***Not right-sizing the pick zone, which involves identifying a good balance between pick-zone size and replenishment activity***

To improve DC performance, companies should assign cross-functional teams to address each issue. Here's how to avoid these three common mistakes:

1. **Don't skip the upfront analysis. Rethink whether your company should stock a SKU, and whether to stock it in every facility or in a centralized DC. Not doing this results in higher spending for labor and facilities. Companies that fail to carefully study how each SKU performs financially and contributes to achieving overall business goals end up sizing DC buildings and equipment for all of their company's SKUs when not all are needed in stock.**

   Instead, count on SKU profiling as part of a detailed financial analysis of each SKU. Remember that manufacturer of plumbing products? Thorough SKU profiling enabled the company to slot fewer SKUs by replacing its traditional product categories with slotting by size, weight and what products customers order together. Coupled with automation in the DC, this company used SKU profiling to eliminate significant labor expense.

2. **Challenge how a DC is organized. Effective organization is especially important when a distribution center is designed to reflect the company's operating divisions and sales channels instead of the velocity and characteristics of SKUs. Multichannel retailers often insist on separation of SKUs between brick-and-mortar stores and e-commerce. That approach requires labor and extra time to physically move SKUs among DCs or locations within a facility and requires a larger footprint to set up duplicate pick and reserve areas for each channel.**

   Challenging the status quo by considering more effective options could lead to a consolidation of SKUs in a centralized DC that "virtually" creates the separation for sales divisions or product categories but improves picking times and reduces labor and other DC costs.

3. **Right-size the pick zone. Companies too often default to enlarging the pick zone to avoid replenishment activities and costs. Doing so inadvertently adds labor costs. As the size of the picking footprint is increased, more picking time is required due to travel distance.[5] SKU profiling can be used to determine the right size that balances pick area versus replenishment by optimizing the pick location size for each SKU.**

Look at Entire Business, Not Just SKUs

Customers buy smaller orders more frequently. Businesses sell across multiple distribution channels, complicating already complex fulfillment operations. Even in an improved business climate, companies face growing pressure to reduce DC costs and especially their labor spend. One tactic companies consider is slotting by SKU profiling. This kind of profiling can help manage today's complex distribution centers, but SKU profiling is most effective as part of a thorough review of business needs across functions and how each SKU contributes to the company's profitability.

SKU profiling requires cross-functional attention to evaluate the business case for carrying each and every SKU. Only then should priorities be assigned to SKUs and decisions made about which SKUs to stock. From there, distribution centers can be efficiently designed and staffed according to sales, velocity and which SKUs typically ship together.

You Need an Expert Partner to Analyze DC Needs

Distribution center managers and their companies can rely on a trusted partner to assist with a thorough review of every SKU and offer expert advice about ways to improve DC design and slotting, picking and SKU-handling operations.

Outside the four walls of the DC, FORTE provides detailed analysis and strategic recommendations to companies. We can help you make the business case for systems and equipment to improve distribution center efficiency and profitability. Inside the four walls of a DC, FORTE can help you optimize the slotting footprint for the entire picking ar

Sources

[1] Global Supply Chain Institute, Haslam School of Business, University of Tennessee, "The ABCs of DCs. Distribution Center Management: A Best Practices Overview," February 2015.

[2] Ibid.

[3] Ibid.

[4] Roberto Michel, 2014 Warehouse/DC Operations Survey: Industry gets crafty, *Modern Materials Handling*, November 1, 2014, http://www.mmh.com/article/2014_warehouse_dc_operations_survey_industry_gets_crafty (accessed March 16, 2015).

[5] FORTE Industries, "Extending the Life and Productivity of Your Distribution Center," October 2014.

Why FORTE

Single-Source Accountability

Whether we're helping you develop a strategic plan, design and build a distribution facility, or optimize a distribution operation through performance metrics and analytics, FORTE provides a true single point of contact responsible for the complete performance of your distribution network. No finger pointing. No fragmentation of responsibility. No multiple suppliers for technical support. You have performance goals, and it's our job to make sure they're met on an ongoing basis.

Total Objectivity

We don't manufacture equipment. We don't develop WMS software. We don't have commercial arrangements with any suppliers for expected volumes of business. We're simply interested in delivering the most efficient distribution solutions at the lowest total cost. Our client-side service approach means our only allegiance is to our customers. So with every engagement, you know we'll choose the most appropriate level and blend of technologies integrated into an effective operational system.

Expertise

Our team is deeply rooted in the hands-on implementation of distribution center design and warehouse automation. FORTE's engineers and technicians integrate today's best practices in supply chain management and distribution center operations while developing next-generation technologies. As a result, our solutions employ the best combination of practical advice, data-driven analysis and technology-enabled systems. With FORTE, you get:

- More accountability than a consultant
- More experience than a systems integrator
- More objectivity than a manufacturer

That's why the world's fastest-growing companies are making distribution their FORTE.