Why and How to Conduct a Warehouse Assessment

Presented by

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In today's challenging and competitive world, your success can hinge on whether your warehouse operation is productive and effective enough to meet your expectations and those of your customers.

One way to gauge how effectively your warehouse operations are meeting these expectations is to conduct a warehouse operations assessment: a systematic review of the warehouse functions looking for possible improvements in efficiency and service. A good operations assessment takes a quantitative and qualitative look at the productivity and service levels of your warehouse operation; it enables you to measure productivity and service and identifies patterns and trends; it tells you exactly where you are and what you need to do to meet your goals. It also allows you to compare your measurements with your own in-house goals as well as industry benchmarks.

Remember, if you can't measure something, it is difficult—if not impossible—to improve it. An operational assessment can help you improve productivity; use distribution center space more efficiently; improve throughput and capacity of orders processed in the warehouse; streamline work-flow by reducing steps; improve service levels, processes and costs; and generally achieve higher profits and lower costs. If these are your goals, combining measurement of the various components of the operation with a structured approach to develop improvements is the key to successfully acting on the assessment findings. Once you gather the information and make the comparisons, you'll be able to draft an action plan.

**Five Basic Components of an Assessment**

The assessment process enables you to identify areas where you can improve operational performance. The five basic components of the assessment are:

1. **Walkthrough and observations of the operation**
2. **Data gathering of necessary information and metrics**
3. **Interviews with key staff members**
4. **Report analysis to determine current productivity and service levels**
5. **External benchmarking to look for areas of potential improvement**

**Walkthrough.** One of the first steps in the assessment is to take time to walk through the facility and observe general operating conditions and effectiveness of the processes being used. This is not a detailed analysis, but developing overall impressions can guide the more detailed steps of the assessment to be completed later. Many times, the initial walkthrough and observations help focus and direct the assessment process. After you have seen enough facilities, it is possible to form initial opinions as to the current level of productivity and service very quickly. The general cleanliness of the facility, employee attitude and morale, overall work pace, information posting for employees, congestion, appropriate use of automation, bar code applications, space and cube utilization, etc. are all issues that can be observed during the walkthrough that can provide clues as to the appropriate focus for the assessment. Using all of the tools available can provide valuable information for the direction of the detailed assessment.

**Data gathering.** The assessment will involve some new research, but chances are you’ve already been collecting a lot of the data for other purposes. Designing an assessment is a matter of putting it all together. Most assessments are a combination of research analysis, report review and on-site fact-finding. The first step is to gather all the research you already have and collect any that you are missing. It is always necessary to establish expectations or standards as the baseline for any comparisons. Measurement against these standards identifies areas where expectations are not being met and action is required.

**Staff interviews.** Another important step is to talk to those staff members directly involved in the activity being assessed. Interview key management staff to gauge their perspective on the operation and any future plans for growth, product changes, or planned process changes. Then talk to the workers on the floor doing the work in the warehouse. If anyone knows where the problems and opportunities lie, it is...
the people who live with the issues day in and day out. Don’t miss this important resource; they are many times the best source for information.

**Report analysis.** Among the types of reports you should consider are basic internal operations performance reports, including service levels such as order shipping accuracy, order turnaround time, etc.; receiving; quality assurance; stock putaway; returns; inventory control; replenishment; and picking, packing and shipping. Examining these reports can help reveal which departments are reaching desired levels and which ones need some attention. The reports usually will include information relating to budgets or expectations compared to actual results in key areas of the business, covering productivity as well as service metrics.

**Benchmarking is important.** Your assessment should compare your desired standards of service and productivity with your actual performance. Comparing your own figures—both actual and goals—to that of other catalog and multi-channel marketing companies can help you evaluate your performance, too. Just be careful to compare “apples to apples” and pick companies that are as much like yours as possible. External comparisons can lead you to certain areas or processes within your operation that are candidates for further study. But remember that you cannot take someone else’s standards or performance expectations and make them your own; there are always too many differences in operations to do this. Our opinion is that it is always better to compare your results against yourself and against a set of standards or expectations over an established time period. This permits the identification of trends as well as snapshot evaluations. It is really desirable to combine both internal and external benchmarks to evaluate where you stand.

It is also very important to make sure you measure activities and costs that are relevant and actionable. Reviewing true productivity metrics in terms of work units and man-hours is better than looking at a percent to sales measure. The percent measure is dramatically affected by price points and labor market conditions, which usually are out of the operation’s control. Emphasis should be placed on comparable benchmarks, which can lead to some action steps by the operations group.

The types of metrics commonly found in a warehouse benchmark assessment are:

- a. Total warehouse cost per order/line/unit  
  (includes direct labor, indirect labor, occupancy costs, and packaging)
- b. Units per man hour  
  - Receiving  
  - Putaway  
  - Replenishment
- c. Units and lines per man hour  
  - Picking
- d. Boxes per man hour  
  - Packing  
  - Shipping
- e. Outbound Shipping costs
- f. Orders and Net Sales $’s per square foot of warehouse space
- g. Orders per FTE (Full Time Equivalent)
- h. Average base pay
- i. Cost factors as a % of Net Sales
- j. Service Level  
  - Order turnaround time  
  - Order and inventory Accuracy
- k. % utilization of available space
- l. Seasonality - % of business by quarter
Four Critical Areas to Assess
There are four key areas that should be evaluated in the warehouse. They make up the most critical aspects of any fulfillment operation. They are:

1. Labor
2. Facilities
3. Workflow and procedures
4. Systems

*Labor* is incontestably the most expensive area on your profit and loss statement relating to fulfillment, so it’s important to get the most for your payroll dollar. Labor, in turn, consists of four areas, the first two of which can be easily quantified; the others are more difficult to quantify but should not be ignored.

**Productivity.** Simply a measure of the number of work units processed in a given amount of time, either by employee or by department. Work units can be orders, shipments, lines, etc. as appropriate for each fulfillment function.

**Cost of labor.** Can be divided into “Direct” labor—the part of your labor force directly involved in physically moving merchandise, accounting for a full 50 percent of overall fulfillment costs—and Indirect labor—clerical workers, managers, supervisors, administrative staff, security, etc.—accounting for about 17 percent of overall fulfillment costs. Both have to be evaluated in the assessment process. The relationship of labor cost and labor productivity is critical to understanding where to place your emphasis.

**Turnover and training:** The effect of your turnover rate is difficult to quantify, but rest assured, it is real. The turnover rate itself can be derived from a simple calculation, and should not be overlooked. If your work force changes frequently, productivity is likely to suffer, as group after group of new employees work through the learning curve to reach full competence. In addition, the cost of hiring—screening, drug testing, training, etc.—is escalating. By contrast, a stable work force that knows the system and processes can continually work toward new efficiencies. Ask yourself what you can do to reduce the turnover rate. How efficient is your training process? Are training procedures documented? Are there enough training materials and manuals on hand? All these factors will make a difference in the effectiveness of your training efforts.

**Local labor market:** Your local labor pool will also affect productivity and costs in a way that is likewise hard to measure but nevertheless real. A low unemployment rate may mean that in order to hire the quality of worker who can achieve the productivity levels you desire, you will have to pay higher wages (thereby increasing labor costs, already a hefty chunk of the cost column). A higher unemployment rate may have the opposite effect. The local economy is largely beyond your control, yet it can have a profound influence on your operations—all the more reason to get a handle on those factors that you control.

*Facilities* should be examined to determine whether you have enough space and whether you are using the space you have efficiently and cost effectively. Components include:

**The cube:** Focus cube utilization on Storage, Picking and Packing, areas which together typically account for 70 to 80 percent of warehouse space. Are you using the whole “cube” (square footage and height) effectively? An assessment gives you the ability to maximize the use of existing facilities before spending money and effort to add resources, so that any future justifications for expenditures will be valid and generate an accurate Return on Investment.

**Costs:** Typically, occupancy costs (lease or depreciation costs of building and equipment, utilities,
maintenance, taxes and insurance) amount to 18 to 22 percent of the total fulfillment dollar. Beyond that, there are many ways, such as calculating the occupancy cost per order or call, to map your facility’s costs and compare the results to other companies.

**Seasonality:** Your warehouse will operate differently in peak and off-peak seasons; take both into consideration. In fact, the frenetic activity of peak season is a good time for assessment; you’ll see whether your space is sufficient and whether your systems hold up. Whenever you perform your assessment, keep peak-season needs in mind.

**Housekeeping/Maintenance:** Cost of occupancy goes up as housekeeping standards go down. Congestion, inadequate lighting, floors in poor condition and lack of proper maintenance will slow work and put your work force at risk of costly accidents that drain profits. Dirty conditions can affect products, resulting in costly returns, and also adversely affect the operation of bar coding equipment, automated conveyances, and mechanical sorting devices. Besides, the attitude, productivity, morale and retention of your work force will be higher in a tidy workplace.

**Workflow and Procedures** are often the easiest areas in which to make improvements. Your goal is to minimize the number of times a product is handled, and the number of steps your crew has to take to move the product through the facility. Providing the potential to match future needs is critical.

**Flow charts:** Develop one detailing how product moves from receiving and returns through replenishment, and a second detailing how orders move from pick ticket generation to shipment. As you trace the movement of goods through the facility, take note of how its layout helps, or hinders, workflow. Consider if departmental workflows contradict each other; whether you are using conveyors where you should, employing the right material handling equipment, and have the best storage methods for your product. Work paths should minimize travel time and merchandise movement. Departments should be situated logically in relation to one another to minimize travel between them.

**Slotting systems:** Your slotting program will determine how efficiently your staff can pick. The goal should be to ensure product is available when the picker reaches the pick slot while managing the number of replenishments needed. Proper slotting is a key to effective replenishment. The ideal slotting system gives you flexibility. You should re-profile your primary pick slots as part of a dynamic, ongoing process.

**Packaging materials:** Failure to keep enough materials on hand, right at the work station, for the warehouse crew to do their jobs (e.g., shipping cartons, dunnage, gift wrap, taping, picking tote boxes, etc.) will mean productivity suffers while workers lose valuable time gathering materials or waiting for them to be delivered.

**Quality control:** Identifying errors early saves money; cost of an undetected error is typically $25 to $50. Don’t rely just on returns from customers to gauge your accuracy or quality performance. Make sure you are measuring and reporting internal quality checks and taking action as needed. The assessment should review both incoming and outgoing quality. Vendor compliance manuals should be reviewed as well.

**Systems** should provide the functionality and flexibility you need, supporting efforts to maximize space and labor efficiency. In most warehouse operations, the three key areas of concern are slotting, replenishment, and location control. Basic warehouse management system (WMS) functionality should include:

**Inventory management** is the most important WMS function. It should track product by SKU, quantity, location and transactions against the location, and ensure inventory accuracy.
Bar coding will not only significantly improve the accuracy of inventory transactions; but also will help you track productivity in four-walls inventory tracking (receiving, stock put away, pick, pack and ship) and productivity by individual, activity and/or department. It can dramatically reduce paperwork.

Replenishment: Your WMS should control bulk-to-forward movement of goods, through minimum and maximum inventory triggers. It should also monitor demand quantity in waves of pick tickets, to make sure sufficient quantities are in the forward pick location. Look for opportunities to cross-dock back orders.

Pick ticket selection: The WMS should enable you to print and sort pick tickets in a variety of ways, depending on order priorities and resource availability.

Pack verification: You should be able to scan items to check accuracy before shipping.

Tracking: Your WMS should track orders throughout the fulfillment process and integrate order status to your customer service department.

Returns: Your WMS should minimize steps for processing returns to keep costs low.

It is critical that all systems communicate with each other as needed and use common data as much as possible to maximize operations efficiency and productivity.

Final Steps: From Assessment to Action

Once you’ve gathered and analyzed all the information you can, patterns will emerge and you’ll have a quantifiable picture of what you do well and what needs to be improved. But your assessment isn’t over. The final step—the action plan—is what will make your assessment yield meaningful results. In creating your plan, focus on areas that will yield the greatest benefit. Before you tally up a long list of changes that will leave your team feeling overwhelmed, recall that Pareto’s 80/20 Law usually works. Where can you get the biggest improvements from the smallest number of changes?

Finally, write your action plan so that it provides for continual improvements over time. It should include detailed action steps, assignment of accountability, and expected completion dates. Manageable changes introduced gradually will be more effective and more readily accepted by your workforce than one massive overhaul. Gradual change helps make continual improvement a part of your corporate culture. Make sure any plans you develop include clear action steps, accountabilities, and timelines.

And don’t assume that one operational assessment is enough. Comprehensive assessments should be conducted on an ongoing basis to stay in touch with customer needs, accommodate your company’s growth, keep pace with your competition’s improvements—and to keep up with whatever promises your marketing department is dreaming up right now.