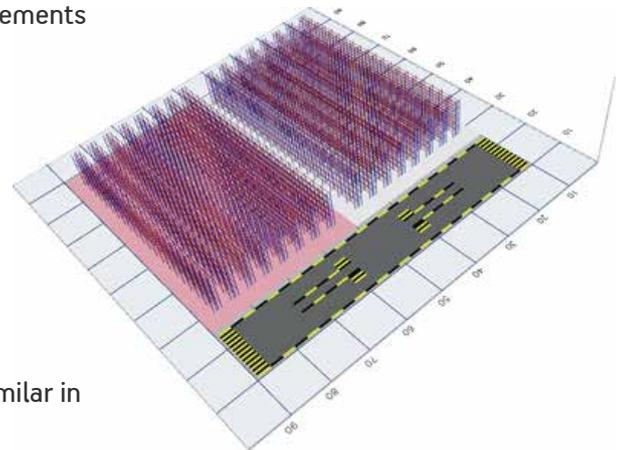


Key Concepts in Double Digit Savings in Warehouse Operations



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Most organizations claim that their operation is unique and that they are as efficient as the next guy. Both statements are more false than they are true.



Most warehouse operations are similar in that they move product, as either individual units, boxes, or pallets. Even in chemical and liquid operations, most product is moved via pallet or lift truck.

That being the case, there are considerable similarities amongst organizations and their warehouse operations, therefore, the concepts for making them more efficient will be the same.

Consultants and business coaches can agree that although the terminology from organization to organization varies, the concepts are very much the same. Here is an outline of some key areas and concepts to consider in reducing operating costs while increasing productivity at the same time.

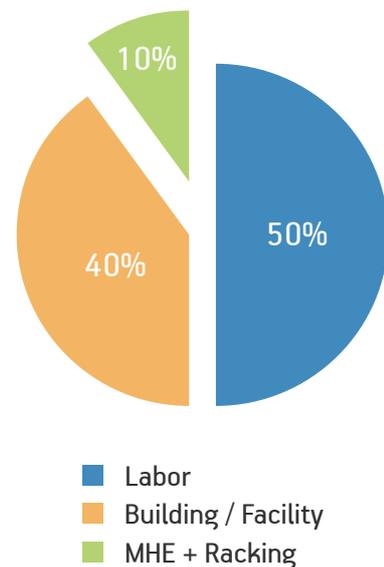
White Paper

How Big is the Pie?

Let's consider the overall cost structure in your warehouse operation. Whether it is \$500,000 or \$5,000,000, most organizations have limited knowledge of what is included or excluded from their budget. A typical operation will have a budget that closely resembles the chart below but may vary somewhat depending on the order size and process.

For the most part, the largest cost in our operation is labor, which also happens to be the most variable. Facility costs (rent, maintenance, and taxes) occupy the next largest piece; while equipment requires about 10% of your total spend. Based on the overall cost of the operation, one should focus on the initiatives that will provide the maximum gain long term and look at short term costs as simply a means to an end. Thus, if there is an overall benefit of reducing labor by say 10% for a one-time capital cost of proper racking or MHE, then we can calculate the overall benefit.

Chart 1: Standardized cost breakdown in Warehousing



Does the Product Fit the Storage Solution?

One of the most overlooked operational costs is associated with the existing storage solutions. I am referring to the investment in current storage solutions that are now being used in the operation where it might no longer be the most effective for the product in place. Many times, we have seen operations use unsuitable storage solutions for the existing business model disregarding the excess labor and footprint costs that are associated with them. Using equipment that requires a 13ft aisle may not necessarily be the optimal solution for your current operation, notwithstanding the increase in required space to run the operation, as well as the increase in labor cost. We have found that some organizations have opted for a costly dense storage medium to reduce the footprint and finally they observe that the product and order mix conflict with the selected storage type. Situations like this are painful for the operation and bring the operation manager in front of a new dilemma. Either keep the current design and accept the lower productivity and performance; or abandon the current design and face the situation of determining what IS the best storage type. Many times, this scenario can be a career killer for the operator or manager in the facility.

Through more thoughtful planning, selection, and design of storage mediums and storage density, operations can typically expect to operate within 5-12% less space than required.

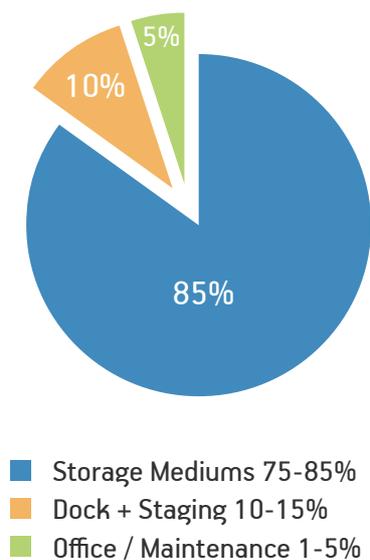
Other opportunities in space utilization are hidden in the overall concept of the facility itself. As illustrated in the chart below, there are standard rules of thumb related to how much space should be dedicated to inbound/outbound areas as well as designated storage (i.e. racked) areas.

A common area of concern in operations is that there is not enough dock and staging space for the business model, which in turn results in excess labor, lower delivery, and quality targets, as well as increased shrink and product damage.

The concept here is to let data drive the solution and not the capital or financial budget. Analyze the following groups of data to come to your solution.

- ▲ SKU - Inventory and Velocity
- ▲ Orders - cases / lines
- ▲ Packing methodology
- ▲ Assignment Profile
- ▲ SKU Characteristics

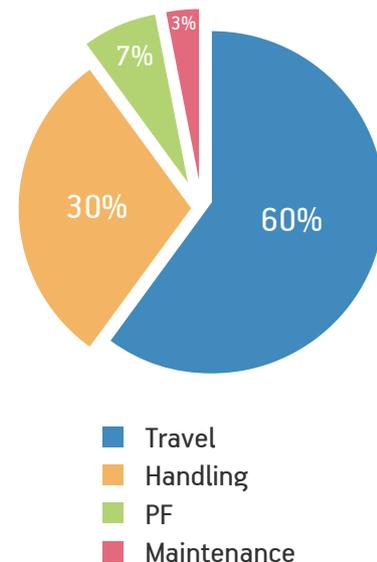
Chart 2 – Space Utilization in Standardized Facility



Labor Concepts - The Key to Shaving Costs

Consider your operation. Watch the floor during a non-peak time and all your staff will probably look occupied with a task at hand. Then observe your workers during the busiest times during a shift. Again, all your staff will likely look busy with something to do. How can a manager or operator determine which level is best to set performance / productivity standards? This is an on-going challenge for most operations. The challenge is not only to accurately determine what the current KPI's (Key Performance Indicators) such as cases / hour / FTE are but also how to quantify and utilize them effectively.

Chart 3 – Labor Breakdown



If we look at a typical labor breakdown (Chart 3) we can see that the largest portion of an operational labor budget is in warehouse travel. However, this will not be the case for operations that have invested in automation and conveyor systems, as these tend to eliminate a large portion of the travel.

Additionally, the personal fatigue factor is affected, in greater degrees, by shift patterns and working temperatures. Our goal then is to dictate standards at each of the major processes and manage the available labor to maximize performance.

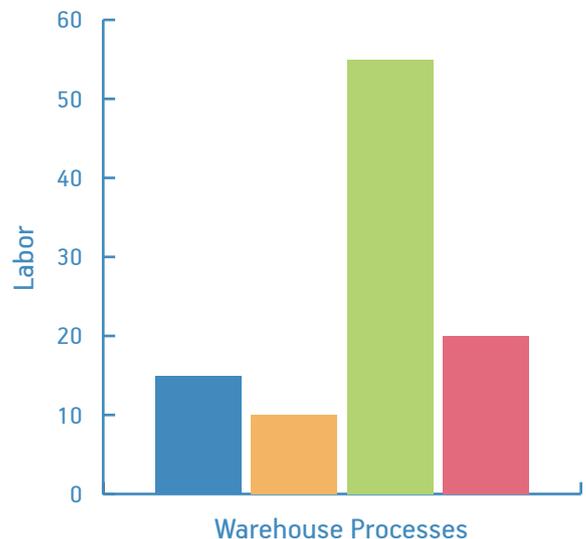
In table 1 we see a typical labor breakdown by task and can focus on each of these in our operational planning. I would put a % sign just above "labor".

In most cases, we observe that managers focus solely on the performance of picking while ignoring the other aspects of the operation.

In such cases, we have found that FTE's involved in picking operate at close to or over the corporate targets, while other direct labor tasks are not held to any standard, especially if they are functions that require less effort to accomplish.

Our task then is to look at all direct labor tasks and manage them all at the same level of performance standard.

Table 1 - Warehouse Labor Profile (source IMM)



Receiving	15%
Reserve / Putaway	10%
Order Picking	55%
Dispatch / Consolidation	20%
Total	100%



What are the causes of poor labor performance in an operation? These can be answered in two main areas:

- ▲ Functional design, and
- ▲ Floor level management.

Poor design forces additional travel and possible excess handling of products and in many cases require management intervention, both driving up the cost of labor.

Floor level management, though routinely dismissed by managers and executives, is the number one cause of poor productivity in an operation. The initiative here needs to be the right ratio of floor managers to FTE's. This is necessary not only for intervention and exceptions but also to focus and attend to progress tracking of assignments.

Travel - The Key to Success

There are two types of travel in the warehouse operation: travel direct and perambulation.

Travel direct is associated with every assignment and is typically a fixed distance either from receiving to putaway or primary pick zone and from the end of the primary pick zone to the dock. Facility size, number of assignments, and the type of MHE being used, dramatically affect this number.

Perambulation is the travel within the storage or picking medium and is affected by pick path, order size, MHE, number of SKU's, and distance between the SKU's. Together, all these factors allow us to look at the overall travel distance per assignment.

Since we have already stated that approximately 60% of our labor cost is in FTE travel, initiatives to reduce travel will result in a reduction in labor.

A rule of thumb is that a properly designed and product-slotted warehouse can reduce the travel component by up to 30%. Applying our previous numbers and calculations, a 30% reduction in travel could add-up to approximately 18% of the labor cost in the operation. Product slotting also results in fewer pick errors, reduced handling, and increased picking rates.



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Benchmarking

Whether you look to engineered standards for your industry or you use an internal IE to create your standards, management can only be effective if it can objectively measure success. As a manager or operator, you need to know your operational standards and performance levels to maximize your labor pool. Though it is a useful statistic, cases / hour / FTE is a financial calculation rather than a performance standard.

Consider the factors that go into cases per hour:

- ▲ Size of the facility
- ▲ Order Size
- ▲ Number of SKU's
- ▲ SKU Characteristics
- ▲ Storage Mediums
- ▲ Technology
- ▲ Automation
- ▲ Packing
- ▲ Shipping Process
- ▲ Management and Overhead

What do you include when you measure cases or units per hour and how will it translate to a useable piece of information to determine performance period-over-period in the same facility.

In summary, there are numerous initiatives that you as an operator / manager can invest your time in to achieve growth and performance, which in turn will result in operational savings. By actively applying these concepts to your operation, you should be able to target savings in the ranges of the following:

Space	5-12% reduction
MHE / Racking	1-3%
Labor	10-20% reduction
Performance	10-20% increase

Added together, you should be able to achieve more than 10% savings of the operational costs as outlined in the typical warehouse environment.