

Drive Additional Savings Through DC Optimization

Facility design offers opportunities for significant operational savings. However, a successful distribution center optimization requires several key phases, including design, detail planning and implementation. A crucial phase of this process that is sometimes overlooked is transition planning. In this white paper, learn the critical steps to distribution center optimization success.

The Impact of DC Optimization

Speed to the customer and cost as a percentage of sales are directly impacted by the efficiency of the supply chain - and it all starts with the Distribution Center (DC).

Based on a recent industry study, total annual supply chain cost as a percentage of net sales ranges from five to ten percent (all industries).

The cost breakdown was as follows for a typical retail client: Outbound Transportation (24%), Administrative, Supplies and Facility (32%) and Operations Labor (45%).

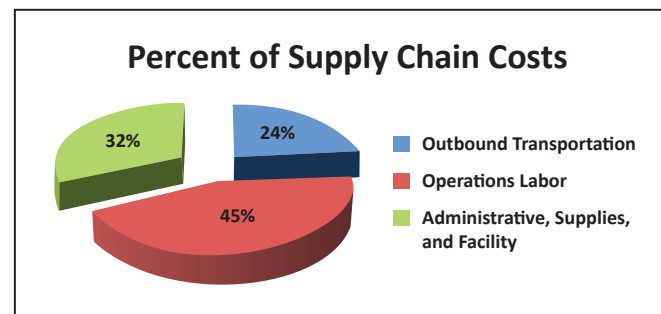


Figure 1: Typical Retail Client

Your operations staff offers a tremendous opportunity for focus. Any reduction in operations labor will have a direct impact by reducing costs as percent of sales, as well as increasing speed-to-customer.

Where do we start? How long has it been since the DC design was reviewed and optimized? The traditional distribution design project starts with the development of a distribution strategic design, followed by the detail planning for the strategic design and then ends with the Implementation of the new design.

The project starts with much focus on the data and processes and the perceived complexity in this area.

The crucial phase that is sometimes overlooked is the transition planning that is required to have a successful implementation.

The details for strategic and detail planning are listed below:

Strategic Planning

Establish A Project Team / Plan Objectives and Priorities:

Process improvement will be as much a part of the solution as material handling equipment. A cross-functional project team should be created.



This team will:

- Consist of DC, information systems, sales, and accounting personnel.
- Interact to establish the objectives and priorities for the development of the warehouse strategic plan.
- Quantify these objectives and priorities for use as a guide in DC alternative generation and apply as the criteria for the qualitative analysis.
- Obtain a consensus on the objectives, priorities, and evaluation criteria.

Establish Database:

The following data should be obtained:

- Planning horizon (five years, etc.)
- Growth (sales and product)
- Receiving and shipping requirements
- Storage and throughput requirements
- Control system requirements, etc.
- Operating procedures
- Present warehouse layout
- Material flow volumes
- Unit load definitions
- Present operating cost
- Economic evaluation criteria and factors
- Present storage, picking, and packaging procedures
- Order profiles
- ABC analysis (velocity movement of product)

Document Current Processes:

Document current processes using tools like Visio. 1) Develop cross-functional flows that encompass the organizations business systems and 2) develop non-value added versus value added process flows. Value added vs. non-value added processes, better known as “value steaming,” is a Lean process for evaluating processes within an organization. The concept of Lean and Muda (eliminating waste) should be a key component of both independent consulting firms and material handling integration (MHI) vendors. However, the approach to solve a Lean distribution problem should be based upon simplicity, agility and flexibility. Material handling equipment is neither flexible, nor agile.

Identify and Document Alternative DC Strategic Plans:

Given the database established in Step 2, material handling, storage and control systems should be considered. The methods of receiving, storing, picking, packaging, and shipping, along with the quantity of stock keeping units (SKUs) in all locations, should all be questioned. The utmost of creativity, innovation, and practicality should be pursued. Various operating and material handling systems, as well as storage/handling systems, should be considered. The solution will be viewed as optimal only if all factors are considered: labor, processes, equipment, space and system.

Evaluate Alternative DC Strategic Plans:

There are a number of areas for consideration and review:

- Define the investment, installation, and operating costs for each alternative plan.
- Perform an after-tax economic analysis of each alternative plan.
- Select the best Warehouse Strategic Plan based on the overall economic and qualitative evaluations. Qualitative factors considered should be items such as flexibility, expandability, safety, security, integration, and ease of implementation.

The project team should determine these factors. The focus should be on all potential areas of improvement. Equipment must be justifiable.

Specify the Plan:

The selected DC strategic plan must clearly illustrate the material handling systems, storage systems, and control systems. The result should be a detailed document that will be extremely helpful if the team is required to present their recommendations to senior management. This document will detail the four steps above and the previously described methodology.

Detail Planning

Establish Bidders List:

Contact appropriate equipment and system vendors and establish a qualified list of three to five vendors for each.

Develop and Release Equipment and System Functional Specifications:

An equipment and systems (warehouse management system (WMS) and warehouse control system (WCS)) functional specification is a document that clearly and logically defines the required functionality and bid requirements for the required equipment and systems. The document assures that all vendors provide an equal level of functionality for the price quoted. It is prepared by the company or its representative and then sent to the appropriate vendors. The vendors will then respond with a proposal that addresses all areas of the document. Documents can range in size from 10 to 80 pages depending on the complexity of the required equipment or systems:

Provide functional equipment and system specifications with information, such as the following:

- General requirements
- Operational requirements
- Definitions of the functional areas of the warehouse
- Integration and interface requirements
- Software and hardware requirements
- Project guidelines

Vendor Interaction:

The team will provide input to vendors during the bid process. Vendors should be allowed four to six weeks to complete the bid response. Items include the following:

- Respond to questions during the bid process
- Receive bids

Challenge

5. Manage the contractors, material handling equipment vendors and internal resources
6. Complete the move without missing any delivery dates
7. The customers should experience business as usual
8. The move has to happen in defined time frame



Program Manager

1. Take control of all individual project plans (operations, IT, construction, MHE, etc.)
2. Consolidate into one plan
3. Work with resources to eliminate constraints and keep the project on track
4. Conduct weekly status meetings and hold the team accountable

Coordinate Site Visits:

The team will establish dates for vendor site visits and document the requirements of equipment and system demonstrations.

Evaluate and Select Vendors:

The team will perform an analysis of the equipment and system bids.

Finalize Layout:

There are three key steps:

- Redesign the conceptual layout based on selected vendors feedback.
- Lay out the facility to maximize storage and minimize congestion.
- Show details and dimensions on layout for items such as staging lanes, aisles, section views of storage equipment, forklift maintenance areas and lighting requirements by area.

Transition

The completion of Strategic and Detail Planning is only 50 percent of the complexity of the project.

Teams will need to collaborate to develop a conversion and transition plan for implementation. The defined tasks will be assigned and a process will be developed to manage this phase of the project.

Conclusion

In conclusion, facility design offers significant operational savings. A collaborative approach and well thought out plan are key to success.

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