WORLDPAC: A Lesson in LEAN Distribution

WORLDPAC, a wholesale distributor of quality replacement parts for original automotive equipment, wanted to apply LEAN distribution techniques and to build a new straightforward 235,000 square-foot distribution facility. Subsequently, WORLDPAC chartered enVista to design a distribution center with one goal in mind; one touch—right time the first time.

WORLDPAC's primary customers are automotive repair shops that specialize in import and domestic automobiles. WORLDPAC has two US distribution centers that support their North American supply chain network. This network consists of approximately 46 local branches throughout the US and Canada.

enVista initially performed a supply chain network analysis project at WORLDPAC to determine the most cost effective supply chain network in North America to support the continual sales growth and product growth through the year 2013. The analysis determined that WORLDPAC's East Coast distribution center, which services the East Coast branches and Canadian branches, was 100,000 square feet undersized and there fore was not supporting the company's continuing growth and was impacting current supply chain costs. The analysis validated that a third distribution center located in the South East was required to support the future sales demand.

WORLDPAC chartered enVista to design their new East Coast distribution facility, which is located 10 miles south of their current facility in Edison, New Jersey. The new facility is 250,000 square feet and has the capacity to meet their estimated growth through 2009.

WORLDPAC and enVista had an equal balance of executive level members and operational level members. The project team determined the facility design needed to:

- Be simple in nature
- Incorporate a one-touch concept, eliminating non-value added steps
- Sustain sales growth and product growth through the next several years
- Meet established customer service levels
- Maximize the labor force, material handling equipment, and current system capacities
- Be flexible enough to support changes in business practices

The purpose of the Material Flow Analysis is to look at a business in a mathematical way, identify any problems in the material flow and informational flow, and at the same time, identify opportunities for improvement. The information that comes out of a Material Flow Analysis also gives the project team the ability to make objective decisions for the design of the new facility. For example, the profile will help decide whether it makes sense to create a "primary pick" area or to pick orders in batch instead of discretely.

Once the project team reviewed the Material Flow Analysis, the next step was to set the design criteria, including:

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1. Receiving Profile

2. Outbound Order Profile

3. Inventory Profile

4. SKU Velocity Profile

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The Material Flow Analysis profiled the different operations of the distribution center, which included:

1. **All picking locations were to be at a maximum height of 96".** The design team wanted to minimize the use of mechanized equipment to pick product. The height of 96" was the limit at which an operator could pick the product without requiring mechanized equipment.

2. **Minimize the number of SKU's that have more than one location.** There should only be a limited number of SKU's that have overstock (reserve) locations.

3. **The new facility needed to store 56,000 SKU's.** These SKU's will be the same as the SKU's stored in the West Coast Distribution center.

4. **The SKU growth used for the design should be 15% per year.** This presented a challenge because in five years, the number of SKU's will have doubled.

5. **Identify the different zones in the warehouse.** For this design, the zones were based on 1) the container that items are picked into, 2) the physical characteristics of the parts, and 3) the product velocity:

   Zone 1 – Items picked into gaylords

   Zone 2 – Light, bulky items picked onto a pallet

   Zone 3 – Heavy items picked onto a pallet

   Zone 4 – Light items placed in a tote

   Zone 5 – Small items picked into a tote

   Zone 6 – Slow moving items that only moved on average less than 24 times a year

6. **Set the criteria for the required inventory levels for each item.** This criteria was established by using the information that obtained from the SKU velocity profile and also the Inventory Profile.

Once all the design criteria was set, the storage medium type was selected and the criteria was based on the zone, velocity, physical characteristics, and inventory levels of each item. The storage medium type selected was single deep selective racking, which is used to store pallets and can be used as decking

The next step was to identify a set of standard storage configurations. The storage configurations included the storage medium type and the specific physical dimension for the location in the storage medium. The design team decided to establish 20 standard storage configurations. The design team looked at each zone and evaluated each item in that zone. It looked at its physical configuration, the inventory levels required and then compared that against the 20 standard storage configurations. The design team selected the smallest storage configuration that met the item's requirements.

After the storage configurations were selected for each item, the next step was to design bay configurations for each zone that would maximize the number of locations, minimize the amount of area used while maintaining the restriction of the 96" high picking window.

Prior to developing conceptual layout space, requirements were developed in receiving, returns, putaway staging, order consolidation and shipping and had growth factors built into them.

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Once all the area requirements and zone bay configuration requirements were completed, the design team started putting lines on paper (ACAD). The design team considered the growth requirements for the different areas as different concepts were developed. enVista developed four designs that could meet the design criteria. enVista also developed, a five-year drawing for each of the designs to illustrate how the design would grow in five years.

The design team held meetings to review the designs and discuss the positives and negatives of each of them. Through these meetings, the design team narrowed the designs down to two. enVista developed a labor model and budgetary cost analysis for the two designs to allow the design team to compare the financial impacts of both designs. The design team met to evaluate the designs, this time including the cost, and selected the design that would best meet the requirements set by WORLDPAC's executive team.

After the design was selected, enVista provided WORLDPAC an RFP document, which outlined all the equipment requirements in the new facility. WORLDPAC selected a MHE provider and with the RFP document, they developed detailed engineering designs. WORLDPAC also chartered an internal project team to validate the design to ensure a smooth transition from one facility to another. One of the biggest concerns about moving into the new facility was the chance of having to relocate 56,000 SKU's. When the product was moved to the new facility, only about 1.5 percent of all the SKU's had to be relocated to a different location.

At the time of go-live, WORLDPAC already had a performance measurement program that had been in place for several years. They used benchmarks from their performance measurement program to measure the performance of the new facility. The first week of performance in the new facility produced great results. In the second week of production they saw an eight percent increase in performance, measured from the baseline with a goal to improve performance by 15 percent in the next six months.

The true measure of success of the new facility has come from the positive feedback of WORLDPAC's customers. They have noticed an improvement in order accuracy and in the quality of the product.

The Success of this Project is Due to Several Factors:

1. Involvement of WORLDPAC's Management Team in the design processes made every aspect of the project flow smoothly. Any decisions that had to be made or any assumptions that had to be validated were immediately addressed.

2. The data analysis that was done for this project (Material Flow Analysis, Inventory Analysis, and Returns Analysis) gave the design team valuable information to support all the design assumptions that were made. Patrick Healy, Vice President of East Coast Distribution, said "enVista, on a whole, put a lot of effort in understanding our business." It was this understanding that enabled the design team to make solid design decisions.

3. The internal project team that WORLDPAC chartered did a great job in validating and adjusting any of the design specifications.

In summary, LEAN distribution concepts are powerful. More importantly, the most effective solutions are simple. And, complex problems do not require complex solutions. In the case of WORLDPAC they are racing faster and crossing the finish line first with their internal and external customers.

For more information on enVista's Services, please call 877-684-7700 or contact inforequest@envistacorp.com

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