

Optimizing Shipping Cases for Manufacturers

Cost Reduction Opportunity

Consumer product firms often view packaging as a marketing responsibility while industrial businesses see it as an engineering function. We see it as part of the supply chain because the shape, design, strength of the corrugated shipping case impacts handling, storage and transportation costs.

The NMFC book which lists freight descriptions and classes – establishing the cost basis of truck transportation – has 85 pages of packaging rules. The obvious question is “does the person making the decision on the shipping case know those rules and apply them?” If not, freight cost is probably higher than it has to be.

What many operations lose sight of is that logistics expense is always larger than packaging expense. Our experience in 400+ optimization projects has shown that in a typical supply chain this is how total costs shape up:

Corrugated shipping case -	10% of total
Warehouse Handling & Storage –	25% of total
Finished Goods Transportation -	65% of total

And in a drive to reduce corrugated costs we have seen many companies push their warehousing & transportation costs much higher. In effect savings nickels in packaging by spending quarters in logistics thus reducing bottom line profit.

Although less than truckload freight is billed by weight, the chief cost factor in establishing the rate and associated discounts is density...the weight per cubic foot. It is for this reason that 100 lbs of feathers are more expensive to transport than 100 lbs of steel. So by designing shipping cases to fit more on a pallet or in a truck can drive down logistics expense.

So, how much can be saved? From a total cost of corrugate, warehousing and transportation on average savings will be 10%.

Complexity versus Efficiency

All operations shipping multiple products face the basic trade-off of complexity and efficiency. Using the same box size for all products generates the least complexity. Greatest efficiency would dictate a unique shipping case for each product. Realistically neither extreme has any value. Essentially one box is too few and 1,000 are too many. So...what is the optimal number of unique shipping containers an operation should use for lowest total cost? This is the exact point where complexity and efficiency meet and it is a different answer for each business.

SCO's analytical tools can resolve this issue to determine the exact number of different shipping cases to generate lowest total cost.

Optimization Examples

We revised pallet patterns and increased storage heights for a manufacturer of electrical components. This change more than doubled our client's handling expense but maximization of storage space and truckload utilization generated so much improvement that total costs declined by 23%.

Our 3PL client was assembling sample kits for a customer which had specified a single shipping case for all 11 varieties. Our analysis showed that utilizing 3 sizes of shipping cases increased cases per pallet and shipment density so that handling, storage and freight collectively decreased by \$3 million...on a no-charge sample program.

Wal-Mart and a supplier of toys redesigned the shipping cases on 200 different products. The reduction in cube eliminated 727 ocean containers per year between Asia and North America. This would result in savings of over \$2,500,000 per year if the freight cost of each container were \$3,500, the low end of the range.

Lee Scott, Wal-Mart's President has announced that 5% reduction in packaging will save Wal-Mart and its suppliers \$10 billion [two-thirds going to suppliers].