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Managing people, materials and costs in the warehouse or DC

From the Golden Zone

Looking to squeeze out costs? Packaging is a science you should understand

By Jack Ampuja, Supply Chain Optimizers

In 2006 Walmart Chief Executive Lee Scott announced plans to reduce overall packaging costs by 5 percent.

“Packaging is where consumers and suppliers come together and can have a real impact on business efficiency and environmental stewardship,” Scott said when launching the effort. “Even small changes to packaging have a significant ripple effect. Improved packaging means less waste, fewer materials used, and savings on transportation, manufacturing, shipping, and storage.”

Walmart’s belief was that packaging optimization would have a big impact on the environment and the balance sheet. Experts projected that the initiative could save Walmart \$3.4 billion in costs per year — equal to 30 percent of the company’s then net profit of \$11.2 billion. In addition to preventing millions of pounds of trash from reaching landfills, Walmart expected to save 667,000 metric tons of carbon dioxide from entering the atmosphere — equal to taking 213,000 trucks off the road annually — and to save 323,800 tons of coal and 66.7 million gallons of diesel fuel from being burned.

Logistics leaders could not fathom this magnitude of savings coming from packaging — primarily the cardboard box that costs about \$1 per

unit. Many asked me if these projected financial savings could possibly be as big as announced. My answer was an unequivocal “Absolutely.”

Walmart soon publicized several major successes involving toys and liquid laundry detergent. These items were excellent candidates. Toys are notoriously difficult to package — many non-uniform items, easily breakable, and quite valuable in relation to their small sizes. Liquid laundry detergent’s biggest ingredient is water, making concentrated detergent a big winner.

In the case of toys, Walmart worked with suppliers to optimize packaging for its private-label Kid Connection line. By reducing the packaging on fewer than 300 toys, Walmart saved 3,425 tons of corrugated materials, 1,358 barrels of oil, and 5,190 trees, and eliminated \$3.5 million in transportation costs associated with 727 fewer ocean containers between Asia and the United States in the first year.

On the detergent front, Walmart asked suppliers to concentrate liquid laundry detergent and make the plastic bottles smaller. Initially manufacturers resisted because of possible adverse con-

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sumer perception. Then Unilever developed Small & Mighty All. Walmart assisted the process by featuring the concentrated product in displays and advertising.

The result? Sales increased — providing both the supplier and the retailer with improved profits. Moreover, the product is now Walmart's top-selling detergent, and the industry has adopted concentrated liquid detergents as the standard.

Packaging as a science

What most companies do not recognize is that packaging attributes — including a product's shape, size, and shipping carton strength — can affect supply chain costs significantly. Success in packaging optimization lies in understanding the relationship of the package to warehousing and transportation: This is where the big savings come from. Mistakenly, consumer product firms tend to view packaging as a marketing function, while industrial firms assign this responsibility to an engineer. And anyone with an engineering background — be it mechanical, electrical, or aeronautical — is deemed to be capable of this science.

We worked with one North American client that made valuable testing equipment often damaged in ocean transit to Asia.

Once we got the equipment into a test lab, we learned that the equipment could not hold up to the normal movements and stresses of ocean transport. The manufacturer assumed that an engineer capable of designing an intricate piece of equipment surely could specify an appropriate shipping container. They now understand that packaging is a unique science that requires special education and knowledge — an expensive lesson indeed.

In another example, many consumer products are packaged 12 to a master shipping case. However, the 12 may be packed in a six-by-two pattern, four-by-three pattern, three-by-four pattern, or

12-by-one pattern. The products also may be packed horizontally or vertically. So in each 12-count box, there are 324 possible combinations of case pack arrangements and associated pallet patterns. Each of these options has a significantly different impact on the cost to store and ship a product. And the wrong decision can cost millions.

Packaging optimization's goal is to lower the cost of packaging, warehousing, and transportation. In the "formula for success," the three critical components are:

Smaller cases. Take air out of the equation. By ensuring shipping cases have little or no internal slack, you can make them smaller and, thus, more efficient. They're also less susceptible to damage and friendlier to the environment (as there is less end-waste for disposal).

Case strength. Ensure that the strength of the shipping container is matched to product needs. Too often in cost-cutting initiatives, the corrugate weight is reduced to save money. In fact, a minimal increase in the cost of corrugate might generate big savings in storage and transportation.

Revised pallet patterns. Make sure shipping cases are aligned with storage, handling, and shipping characteristics. The denser the pallet, the more efficient the supply chain.

Savings will vary by company and product. For some, savings are spread across factors of packaging, warehousing, transportation, and damage. Other processors might find benefits in just one category. Either way, the savings can be substantial.

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