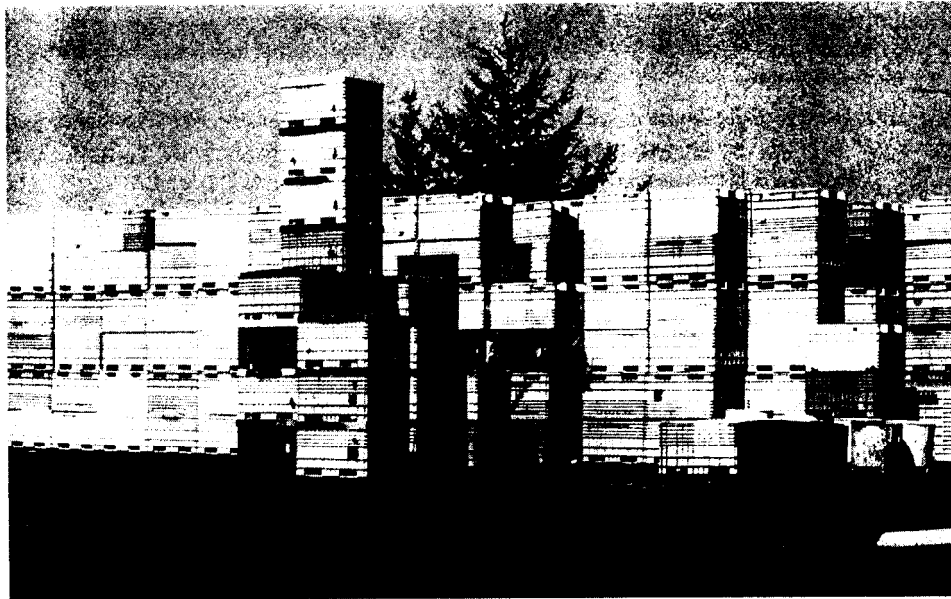


Less waste on the loading dock



by Dr. Diana Twede

Innovative ideas abound for reducing, reusing and recycling transport packaging waste.

Logistical, or transport, packaging - shipping containers and pallets - constitutes more than half of the municipal solid waste attributed to packaging in the U.S. Unlike consumer packaging, most logistical packaging disposal costs are internal to business transactions captured in market prices.

In almost all cases, the explicit cost for disposal is borne by the company that purchased the goods in packages, and is an indirect transaction cost. For this reason, manufacturers and their customers have a competitive incentive to reduce the cost of logistical packaging waste disposal.

Until recently, there has not been much effort to reduce logistical packaging. Traditional designs had not changed for 80 years, and many of the costs associated with such packaging have gone relatively unexamined and unmanaged. The use of corrugated fiberboard boxes, steel drums, wooden crates and pallets has been institutionalized in the U.S. by transportation carriers who maintain rules for "acceptable" packaging. (For more information, see "The role of reusable shipping containers," also in this issue.)

A trend toward innovation

There is a new trend, however, toward innovation aimed at reducing the amount of material used in logistical packaging. This trend has been stimulated by changes in four important factors that affect the structure of the logistical packaging industry.

Transportation deregulation. Traditional barriers to new packaging materials have been reduced by transportation deregulation, which reduced the carriers' authority to regulate logistical packaging in three ways: it permitted limited liability; it increased the use of contract rather than common law; and it reduced the legitimacy of carrier collusion. As a result, in 1994, motor-common carriers adopted an alternative performance standard, permitting a much greater variety of reduced packaging forms.

Rising waste disposal costs. Market threats from substitute materials have in-

creased, encouraged by government, rising disposal costs, new technology and logistical management trends. Integrated logistics management trends have led to more comprehensive system-wide evaluations of packaging and other logistical activity tradeoffs, including the cost of waste disposal. The rise of waste disposal costs has had the most dramatic influence on logistical packaging. Competition is switching from lower-cost cardboard boxes to plastic packaging, including stretch-wrap, shrink-wrap and returnable bins.

Market power. Packaging suppliers are exerting market power to facilitate recycling of some materials in order to maintain market share. The corrugated paperboard industry owes its successful recycling programs to the fact that it is relatively vertically integrated, compared to other logistical supply industries, such as those that make wooden pallets and plastic packaging. The paperboard

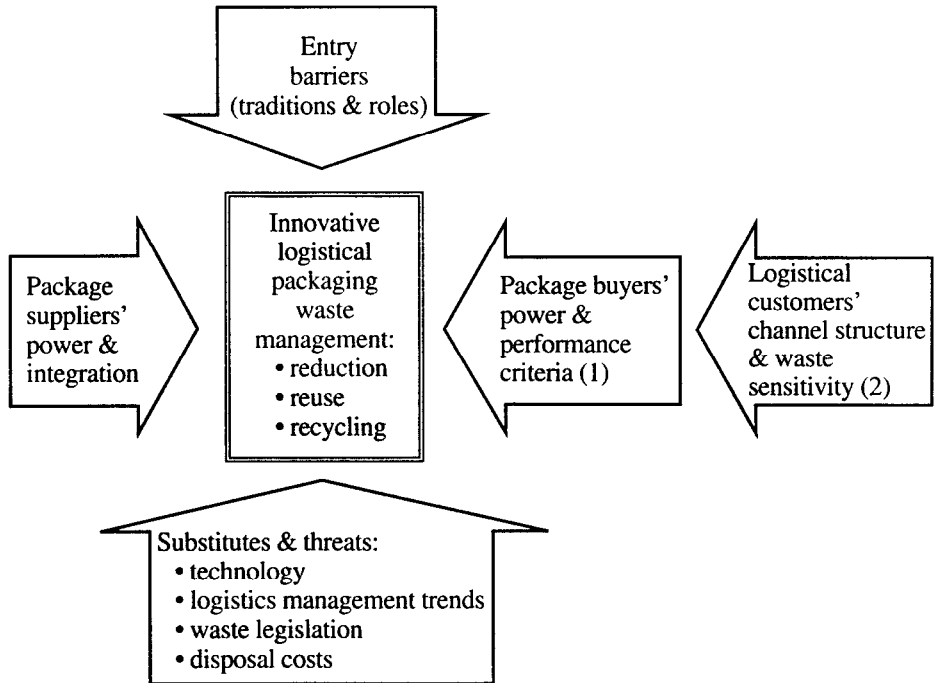
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industry's recycling effort has been an effective defense against arguments that favor packaging reduction over recycling. However, it further institutionalizes paperboard and provides another barrier to innovation.

Shift of bargaining power. There has been a shift of bargaining power from packaging suppliers to buyers and to customers, who are becoming more interested in reducing packaging. Largely because of integrated logistics, buying firms find that active management of logistical packaging results in innovation and lower costs. Logistical packaging management is becoming more than a simple purchase function that merely buys periodically according to the carriers' packaging rules. For example, the decision to invest in a returnable container program requires more than purchasing authority. Returnable containers affect behavior and costs, including those for purchases, storage, handling, transportation, tracking and customers, throughout a logistical system. Returnable packaging is a large investment and must be carefully controlled and cost-justified.

Since logistical customers are the companies that unpack the boxes, they are increasingly sensitive to the rising cost of packaging waste disposal. Waste disposal is an explicit cost for logistical customers, and their influence on suppliers to reduce packaging is currently more important than legislative man-

Figure 1 Factors shaping reduction, reuse and recycling of logistical packaging



(1) Buyers are typically manufacturers.

(2) Customers are typically retailers.

Source: Yale University, Program on Solid Waste Policy, 1995.

dates in reducing logistical packaging waste. The influence that customers can exert varies, generally depending on the structure of the distribution channel. When the firms in a channel are strategically allied, they are more likely to reduce packaging disposal cost. For example, a very close alliance is necessary for a returnable container system to be feasible.

These factors determine a manufacturer's packaging strategy and the potential for innovative management of logistical packaging waste. The cost of logistical packaging, including the cost of its disposal, can be a basis for a strategic advantage. The competitive strategy framework is a valuable tool for exploring industry responses to waste issues in a market system.

Strategic implications

Innovative ideas abound for logistical packaging waste reduction, reuse and recycling (see Figure 1). Such incremental innovation reduces costs and waste without compromising packaging performance. Therefore, logistical packaging innovation can be the source for a competitive advantage for four constituencies.

Firms and organizations. Firms and organizations at the end of the marketing channel, including retailers and government agencies, have leverage to negotiate waste reduction in proportion to their size and the strength of the relationship with the manufacturers from whom they buy.

Manufacturers. Manufacturers who buy packaging are best positioned to negotiate for waste-reduced packaging by establishing performance standards to encourage substitutes for traditional materials and logistical systems.

Packaging suppliers. Packaging suppliers can promote waste reduction by using recycled materials and facilitating recycling of their products.

Policymakers. Policymakers can take advantage of market forces by incorporating the environmental costs of solid waste in the price of disposal.

Results

The logistical packaging industry in the U.S. is shifting conceptual boxes. Future logistical packaging will use less material. More logistical packaging will be recycled. More packaging decisions will be based on customers' needs, including waste disposal. And the more the cost of disposal rises, the less waste we will see on the loading dock. RR

Notes

This article is based on *Less Waste on the Loading Dock Competitive Strategy and the Reduction of Logistical Packaging Wastes*, prepared by Professor Diana Twede for the Yale University Working Papers on Solid Waste Policy. For additional information on the working papers, contact Reid Lifset, (203) 432-5912 (fax), pswp@yale.edu (E-mail); www.yale.edu/pswp (Web site).