

Pallet contributions to
supply chain efficiency
are letter perfect.

THE POWER BEHIND THE SUPPLY CHAIN

Although they may not receive as much attention as ERP systems or refrigerated trucks, for example, pallets are critical to distribution and logistics. They are key links in most companies' supply chains, essential for transporting everything from T-shirts to automotive parts to pharmaceuticals. When outfitted with the right technology, pallets also can provide visibility into the movement of the goods they carry. "Pallets are the cells of the supply chain," says Glenn Meeks, director of sales and marketing with Bettaway Transportation Logistics and Pallet Systems.

More than two billion pallets are in circulation at any given time in the United States, according to industry analysts. Approximately 94 percent of industrial and consumer goods in the United States travel on a pallet at some point in their movement from production or manufacturing plant to distribution facility to end customer.

Demand for pallets has been on the upswing. "The U.S. economy's recovery from its sluggish phase has led to an increase in procurement, production, and sales activities," says Sharan Raj, analyst with market research firm Technavio. These increases are driving demand for materials handling activities and products, including pallets. The global pallet market will grow at a compound annual rate of 4.6 percent between 2014 and 2019, predicts Technavio's *Global Pallet Market 2015-2019* report.

Several other trends are affecting the pallet industry. Shifts in how consumers purchase products — such as the growing popularity of smaller stores and direct-to-consumer sales — are

influencing pallet sizes. More companies are concerned about the impact of pallets on the environment, leading to a greater focus on sustainability and reusability. In food transportation, pallets with the ability to maintain a clean, contamination-free environment are garnering attention. In addition, more shippers are looking for technical capabilities that enable them to monitor pallet movements through the supply chain.

The pallet industry also is engaging in more outreach to other industry groups focused on the supply chain, such as trucking and warehousing associations, as well as government agencies charged with issuing regulations that impact pallets. With the proliferation of social media, incorrect information about the environmental impact of pallets can spread quickly. "As an industry, we need to dispel false information," Meeks says.

Identifying an optimal pallet solution starts with clear, thorough communication between the pallet provider and the shipper. Both need to know how the pallets will be used, and

in which warehouse system and business model they'll operate. For instance, the right solution for a closed-loop system — where pallets travel from a company's distribution center to its own stores and back again, all via a private fleet — likely will differ from a system where pallets move from a firm's manufacturing plant to separate wholesalers and on to a variety of other locations.

Five qualities determine whether a pallet is right for a particular operation, according to Meeks. These are:

1. **Strength:** Can it handle the load?
2. **Stiffness:** Will it hold its shape under the weight of the load?
3. **Durability:** Will it hold up under the handling it will receive?
4. **Functionality:** Is it right for the unit load and the handling equipment?
5. **Price:** Does it provide value?

Many pallet solutions providers work with their customers to identify the best options. CHEP, a global provider of supply chain solutions for the consumer goods, food and beverage, and manufacturing and retail sectors, works closely with its customers to understand their needs.

"CHEP provides a wide array of supply chain platforms, including pooled, recycled, fractional, and custom pallets," says Dan Martin, senior vice president of sales at CHEP USA's North American headquarters in Atlanta. "In addition, our supply chain solutions portfolio of services, which we launched in June 2015, adds tremendous value by saving companies money, time, and resources."

A CUSTOMIZED APPROACH

iGPS, a provider of world-class supply chain solutions that leverage sustainable, intelligent shipping platforms, approaches "all our clients cognizant of their unique needs and differences," says Jeff Liebesman, CEO. "We provide customized supply chain solutions."

Processes and business approaches may differ between working with a manufacturer or a retailer. "The solutions need to be relevant to their specific needs, utilizing a total system approach," Liebesman says.

Along with communication between the pallet provider and the user, proper training is key. For instance, warehouse workers switching from

wood to plastic pallets may need to learn how to handle the material. "Companies can work with us to identify the best practices in materials handling," says Mike Ludka, senior product manager for the retail supply chain with ORBIS Corporation, a Oconomowoc, Wis.-based provider of plastic reusable packaging programs.

MATERIAL ASSETS

Pallet users can choose from a variety of materials. Currently, wood accounts for about 95 percent of the pallet market. "Wood pallets are strong, durable, inexpensive, and highly customizable," says Raj. They're also available in a variety of sizes and strengths. However, demand for pallets made from alternative materials, especially plastic, is expected to grow. All materials have unique characteristics, and the right choice can vary from one application to another.

Wood is all natural and fully recyclable. Manufacturing costs for wood pallets are significantly lower, which keeps prices down across the supply chain, says Adrian Potgieter, senior vice president of sales with PECO Pallet, an Irvington, N.Y.-based leader in pallet rental services.

PECO pallets also have been certified by the Safe Quality Food Institute. The certification "is a testament to our commitment to providing high-quality pallets that meet or exceed U.S. Food and Drug Administration (FDA) safety requirements," he adds.

PECO pallets are constructed from quality number two grade Douglas fir and southern yellow pine wood that's responsibly harvested in North America. The denser grain of these woods results in greater durability. In addition, the lumber used in PECO pallets is kiln-dried, rather than chemically treated. This seals the wood cells to reduce contamination risk, and creates a stiffer pallet that is less prone to deflection and breakage.

Safety goes hand-in-hand with quality. PECO pallets can hold 2,800 pounds and can be safely stacked and loaded in high-reaching overhead racks. "PECO's high-quality pallets work smoothly in automated processing lines, avoiding equipment jams that might lead to employee injury or product damage," Potgieter says.

Plastic pallets have several shortcomings. "They tend to slip in refrigerated environments, and can be prone to deflection when stored in overhead racks," Potgieter says.

"When damaged, plastic pallets are more difficult and expensive to repair than wood pallets."

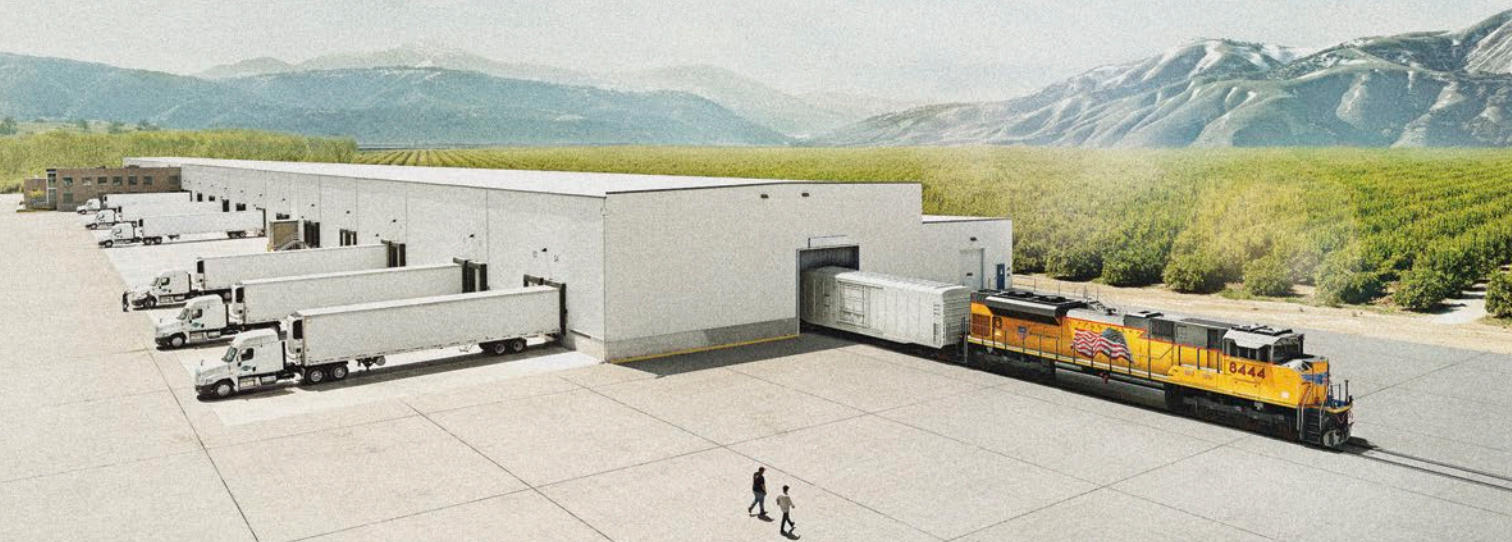
But plastic pallets also offer many advantages. "Our pallets are less prone to breaking than wood, which reduces product damage," Liebesman says. They

eliminate wood splinters and nails that frequently jam manufacturing equipment and can shut down assembly lines and automated storage and retrieval systems (AS/RS), which can negatively impact productivity. Likewise, plastic pallets are lighter,



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which can reduce the risk of injury to handlers and cut transportation costs.

Unlike wood, plastic pallets cannot absorb bacteria and are exceptionally easy to clean, Liebesman adds. That reduces the threat of product contamination, eliminates the need for fumigation or chemical treatments, and minimizes other outside pollutants that can materialize from wood pallets.

The issue of hygiene and sanitation within the supply chain has been a growing focus of regulatory agencies including the U.S. Department of Agriculture and the FDA. “While always a concern for the industry, hygiene issues have moved to the forefront,” Liebesman says.

One example is the recently issued final rule on the Sanitary Transportation of Human and Animal Food, which is part of the Food Safety Modernization Act. The regulation advances the “FDA’s efforts to protect foods from farm to table by keeping them safe from contamination during transportation,” according to the administration.

STRENGTH AND STABILITY

Like the pallets they offer, the companies behind them should be strong, stable, and capable of handling the job they are assigned. When considering a pallet provider, Meeks of Bettaway recommends asking, “Does the provider have the resources, stability, and experience to provide the pallet management solution that meets your company’s needs?” Any evaluation should consider the provider’s ability to supply the right pallet at the right place

and time. After all, pallets aren’t of any use if they aren’t in place when they’re needed.

Given how pallet needs can vary between companies and industries, providers should offer a range of solutions. For instance, most consumer-facing companies move products at a relatively fast pace. “This is where pallet recycling, reuse, and recapture becomes even more important,” Meeks says.

Conversely, companies that operate in business-to-business markets tend to turn products less frequently, but may require specialized sizes or types of pallets that can handle big, heavy, or bulky items. “Shippers should look at the opportunities to leverage different services, whether that’s recapturing pallets or using specially designed ones,” Meeks adds.

CUSTOMERS COME FIRST

Strong customer support and service also contribute to a quality pallet solution, and should include more than just an 800 number. PECO, for instance, employs dedicated service reps throughout North America. They work directly with customers to follow up on questions and identify new ways to increase efficiencies and reduce costs throughout the supply chain.

Bettaway offers national coverage complemented by local service. “We strive to provide pallet management solutions that allow customers to focus on their core business,” Meeks says. As a full-service third-party logistics provider that also offers asset-based trucking and warehouse services across the nation, Bettaway can provide a total supply chain solution, he adds.

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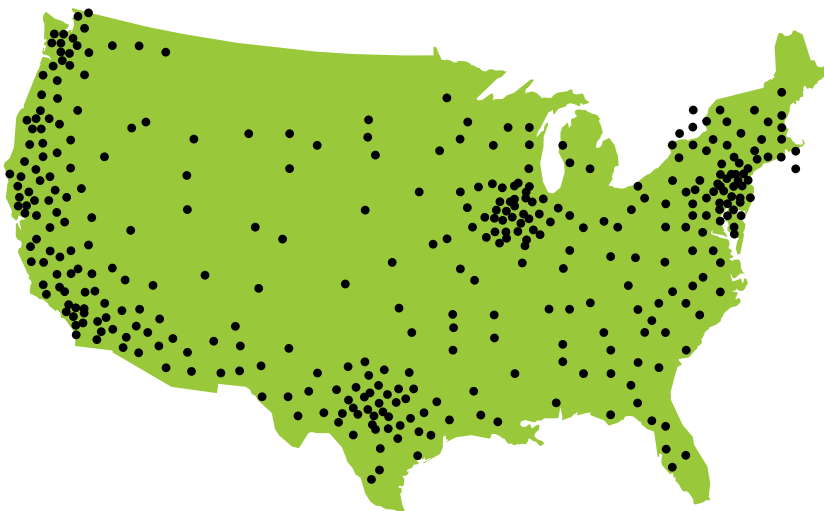
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A pallet provider's capacity to offer innovative solutions is another factor to consider. For instance, ORBIS operates a materials innovation facility. On-site chemists constantly evaluate different materials to provide customers with the pallet solutions that best meet their needs, Ludka says.

When working with customers who have unique needs, ORBIS assesses whether it can best serve them by creating a new solution. For example, because distribution companies often need to conserve space, ORBIS offers a pallet design that nests individual units within one another. When the pallet isn't loaded, its feet compress into the open foot pockets, slashing its height by about two-thirds. The pallet's light weight also allows for easier maneuvering by operators, yet it's durable enough to withstand the handling that occurs as it moves through the supply chain.

ORBIS also launched the Pally — a pallet and dolly in one. By pressing the foot pedal, an operator can shift the Pally from static to mobile. In the warehouse, the Pally can be used like a true pallet; it's also static and thus safe to use on trailers. But when the Pally is used to deliver products to retailers, operators can activate the mobile feature and offload the trailer without additional equipment. Companies can save money and space by cutting their inventory of both pallets and dollies.

REPORTING FOR DUTY

One area where technology and innovation play an important role is in reporting and analysis capabilities offered by pallet providers. Many companies operate increasingly lengthy and often global supply chains, and are undertaking efforts to hold less inventory in their pipelines, which is driving their focus on decision support. More companies are demanding systems that allow them to track their goods and the pallets moving them, and pallet providers are responding.

"Our customers want to become more efficient and save money without sacrificing quality or on-time delivery," says Martin. Through its data-driven Value Chain Mapping solution, CHEP helps customers evaluate their entire supply chain to identify an average of 12 ways they can become more efficient, save money, and reduce environmental impact.

"CHEP has collaborated closely with its customers on supply chain solutions that have saved them \$13 million over the past nine months by identifying opportunities and implementing solutions that increase efficiency," Martin says.

iGPS works with manufacturers and retailers to map and optimize their supply chains. Wherever possible, iGPS helps them efficiently employ underutilized capacities — say, in transportation — to drive shared savings, Liebesman says. The company's iDepot and Total Pallet Management programs generate shared savings and income to retailers, driving down total costs and increasing efficiencies throughout the supply chain.

In addition, iGPS's "track and trace" intelligent platform features integrated RFID technology. Every pallet contains a unique serial number that can provide actionable reporting in real time.

The same technology also can provide real-time information on environmental changes, help reduce product damage or loss, and even notify supply chain managers of suspicious activity.

Bettaway offers a mobile app its customers can use to "manage and track the movement of their goods from their phones," Meeks says.

Red<>Link™ is a proprietary online management tool for PECO customers. Users can log in 24 hours a day to place orders, check delivery dates, view invoices, and generate reports. "By providing our customers easy access to the same information PECO uses, we can work together to manage pallet flows, identify problem areas, and find new ways to reduce costs," says Potgieter. PECO also offers sophisticated analytical tools such as Roambi and Tableau, which provide real-time visibility for companies with complex networks.



iGPS offers plastic pallets that lack the protruding nails and splinters that sometimes injure workers and damage products and equipment.

ONE SIZE DOES NOT FIT ALL

Within the United States, the most common size wooden pallet is the standard 40-inch by 48-inch Grocery Manufacturers Association (GMA) pallet. Working with a single size aids efficiency, as warehouses and equipment can standardize around it. Costs increase when pallet dimensions vary, as more of them need to be manually unloaded, Raj notes. In addition, a uniform size and design allows for optimizing warehouse space through efficiencies in stacking or racking pallets loaded with products.

At the same time, demand for varying pallet sizes appears to be growing. Just 25 percent of new pallets are the GMA standard, according to one industry source.

Changing customer demands are prompting pallet providers to offer a wider range of sizes. For instance, the proliferation of small-format retail stores — such as convenience and smaller drug stores — along with the increase in direct-to-consumer shipments is prompting a shift away from traditional pallet footprints.

The traditional 40-inch by 48-inch pallet, a staple in the United

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States, is set up for bulk deliveries. However, few smaller stores, let alone consumers, take deliveries in bulk. Convenience or dollar stores, for instance, may struggle to accommodate 40-inch by 48-inch pallets.

Half-pallets, which measure 40-inches by 24-inches, are a popular alternative. They work well for end-aisle displays in grocery stores, as well as for businesses with smaller footprints. CHEP's half-pallet solution is proving to be a popular option because it increases delivery flexibility and decreases operational costs, especially when it comes to inventory optimization and pick operations in multiple store formats.

"Our half-pallets can reduce warehousing labor and handling costs by up to 25 percent," Martin says. "In addition, they may reduce out-of-stocks of high-volume products, and improve retailer support and sell-in for new products and seasonal promotions."

STAYING IN SPEC

No matter which size is best for a particular application, "the uniformity and accuracy of pallet dimensions is critical, especially for companies that use automated production lines," Potgieter says. "Pallets that are out of spec or damaged can cause equipment jams." This often leads to employee downtime and possible injury, and can increase equipment repair costs, and/or product damage.

Conversely, accurate pallet design and size can enhance material handling efficiency in all phases of unit loading. In particular, adhering to tight tolerances is essential when pallets operate through large AS/RS, as it helps ensure ease of movement and can eliminate delays resulting from system failures and hang ups.

PECO builds pallets to strict specifications, and inspects and repairs pallets as needed, every time they cycle through a PECO depot. That way, the company ensures its customers get uniform, high-quality pallets every time, Potgieter says.

iGPS plastic pallets are a uniform and consistent size, shape, and weight, Liebesman notes. In addition, they aren't altered during the supply chain process.

Most companies that use pallets want to minimize any negative impact on the environment. Today's pallet solutions — both wood and other materials — can help them achieve that goal.

To start, most pallets are designed to be reused over a period of years. In addition, the companies that produce both wood and plastic pallets take steps to do so efficiently.

"Whenever you can talk reusable packaging, there's a huge sustainability advantage," Ludka says. Reusing pallets, rather than continually turning to new pallets, can cut the amount of water and energy used and produce fewer carbon emissions. Most pallet providers have seen their products in use for years — and even decades — after they were manufactured.

"If a company gets the right pallet size and uses it properly — that is, doesn't go outside the parameters — they'll get extended use out of the product," Ludka says.

Each PECO pallet is utilized in an average of four operations each year, and is in use for more than 10 years, Potgieter says. That's a result of the high-quality wood from which the pallets are manufactured, as well as the company's strict maintenance standards, he adds.

Pallet solution providers can help customers cut their environmental impact in additional ways. CHEP's unique transportation solutions, for example, allow shippers to eliminate empty truck miles by identifying fleet optimization and cost-saving carrier synergy opportunities.

"For instance, over a nine-month period, CHEP helped customers eliminate almost 4.5 million empty truck miles and generate \$5 million in new revenue," Martin says. "That solution also allowed those companies to eliminate more than 23 million pounds of carbon emissions."

As these examples show, pallets — and the services offered by the companies that provide them — can help companies streamline and improve their supply chains. Pallets are "one of the key considerations in modern logistics," Raj says. They help products travel efficiently, reliably, and safely. ■



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