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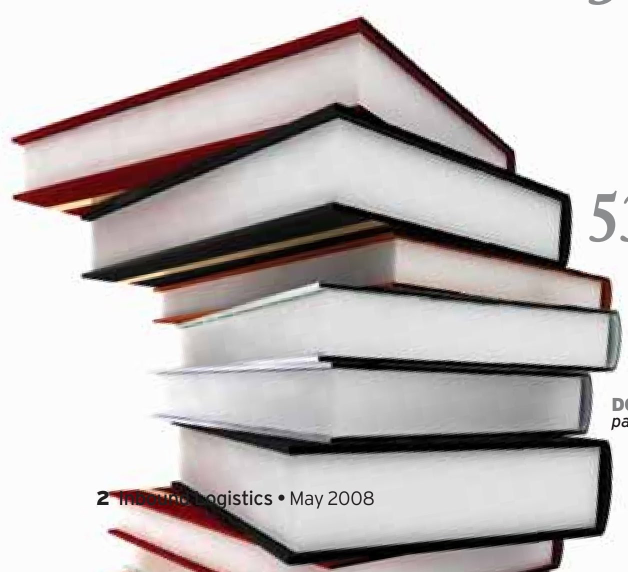

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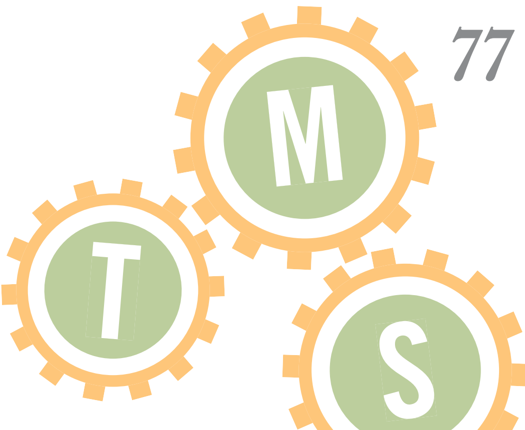

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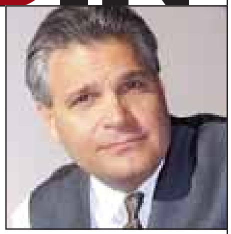

Keith Biondo

by Keith Biondo | **Publisher**

Less Pie in the Sky And More Meat and Potatoes

When asked about the economy, Harry S Truman said he wished for a one-handed economic advisor so he could never say, "on the other hand." In certain sectors, the economy is bad and likely to get worse.

Why? Could it be that the decades without a national energy policy are coming home to roost as energy costs increase exponentially at every touch in the value chain? Add tax and other policies that disrupt business, and therefore job growth, and throw in the cupidity and stupidity creating credit crises in the mortgage and finance sectors. And let's not forget globalization pressures increasing competition and inflation, as emerging and booming economies buy copious amounts of almost every commodity, leading to higher prices and temporary shortages in oil, copper, steel, chemicals, paper and, yes, food.

On the other hand...I believe that the U.S. economy ought to be considered the aggregate of work that each and every one of us does. And many of us are working as hard as ever to compete and grow. There are some rocky times ahead, but the U.S. economy ain't yet dead.

Whether it is perception or reality, times like these remind us to be more conservative. Recent discussions with readers, solutions providers, carriers, and others in the industry revealed a trend toward postponing pie-in-the sky solutions–applications, technology, equipment–and sticking to the meat-and-potatoes solutions that drive immediate optimization and deliver quick ROI.

Some solutions are simple, such as placing speed governors on fleets and adjusting truck idling policies. Others are more strategic, focusing on logistics IT solutions that deliver quick, demonstrable ROI, such as the new generation TMS solutions. Companies are also renewing their emphasis on avoiding costly disruptions, giving greater value to investing in visibility tools.

More and more companies are willing to listen to the social responsibility case for being green–but they are acting on the business case. One reader, for example, says that changing to more efficient lighting in his distribution centers will save almost $100,000 in energy costs over one year.

At NA 2008, the Material Handling Industry conference held last month in Cleveland, I checked out a new generation of equipment–scanners that update and repair themselves, strategic forklifts that enable and empower the labor force with measurable efficiency gains, asset meters on materials handling systems that sip power on an as-needed basis instead of an always-on basis. Many of these advances send strategic alerts that predict failure instead of sending a notice after the breakdown. When coupled with extra durability, they really deliver disruption avoidance savings.

What meat-and-potatoes steps are you taking in your operation while the economy recovers? Email us at editor@inboundlogistics.com so we can share your back-to-basics menu with other readers hungry for savings. ■

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10TIPS

STEP-BY-STEP SOLUTIONS

by Deborah Catalano Ruriani

Boosting Supply Chain Visibility

Improving supply chain visibility is a top priority of companies striving to maximize global operations performance. Nathan Pieri, senior vice president of marketing and product management for East Rutherford, N.J.-based Management Dynamics, a global trade management solutions provider, offers these tips for using technology to increase visibility.

1 **Look at the big picture.** Make sure your visibility software is flexible enough to accommodate various fulfillment models in operation throughout the entire company. Look to accrue benefits across the enterprise, not just within one product line or operational model.

2 **Create an "information hub."** Eliminate the need to re-key information by centralizing key order, shipment, and inventory information from all internal inventory planning systems.

3 **Don't assume data quality.** Data quality exceeds 91 percent in only 16 percent of visibility software implementations, according to the Aberdeen Group. Make sure the information feeding your system is timely and accurate.

4 **Choose your trading partners wisely.** Data quality starts at the source. Certify new connections by carefully assessing information requirements and leveraging existing integration from an established network of transportation and logistics providers and brokers.

5 **Postpone inventory allocation decisions.** Many leading companies use visibility systems to track shipments at the SKU level. This tracking allows them to treat containers as "floating warehouses" to implement inventory diversions through a transload facility or to postpone all inventory allocation decisions until just prior to entry.

6 **Push visibility back to origin.** Savvy companies link orders to shipments and manage in-transit inventory. New customs regulations, such as 10+2, make importers more accountable. Many of the required 10 data elements relate to where goods are loaded.

7 **Use scorecards to manage trading partners.** With visibility comes a rich storehouse of supply chain data that can be used with all trading partners. Create a data scorecard to manage supplier compliance and performance.

8 **Track landed costs along the supply chain.** Use visibility to track product, freight, and insurance costs as well as integrate trade compliance information such as duties, taxes, and other government charges. By monitoring budget variances, you can effectively target cost overruns.

9 **Use triggers to automate shipment handoffs.** Leading companies use "triggers" based on supply chain events to plan warehouse receipts, schedule pickups, and issue exception alerts. These triggers create tremendous value by compressing order cycle time and helping to reduce demurrage and detention fines.

10 **Become your own 4PL.** Shippers can implement and deploy new value-added services for their business units and "plug-in" logistics provider partners–in effect, becoming their own fourth-party logistics providers (4PLs). This model's advantage is that all trading partners integrate to one standard and are managed both tactically and strategically. The central logistics team controls all information assets and delivers value-added services to constituents. ■


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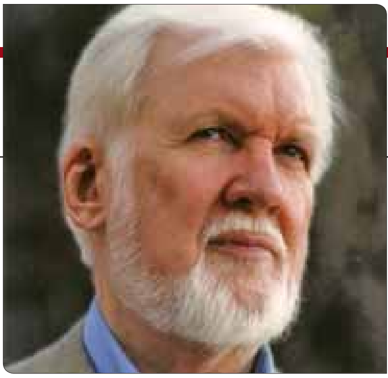

[SCPERSPECTIVES]

BY ROBERT A. MALONE
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Seattle's Second-Best?

Is it the coffee? Or perhaps the people? Why has Seattle contributed so much to the forward motion of logistics? And will it last?

When people think of Seattle, they are reminded of its coffee, salmon, and fir trees. It's also the hometown of American titans such as UPS, Boeing, and Starbucks. But as these companies grow, and take their operations elsewhere to compete globally, cities such as Seattle are losing a vital part of their economic identity. The rain falls a little harder, and the coffee tastes a little more expensive.

A Seattle UPStart. In 1906 Jim Casey started UPS with an idea and a bicycle, eventually graduating to a Model T. Brown became the company's color of choice because it didn't show the dirt so badly.

After UPS evolved into the model for ground package and freight pickup and delivery, it left Seattle. It moved first to New York City, then to Atlanta, where it now stands large and strong.

But the company says its future growth lies not in the United States and cities such as Seattle, but overseas. UPS embraces a global strategy it calls "one to one" – one company connected to another worldwide by ground and air. This connection, however, greatly depends on air freight, which is currently at the mercy of rising fuel costs and difficult infrastructure challenges across the globe.

Oh well, it did leave Seattle.

Boeing Gets Going. In 1916 William E. Boeing started the Boeing Airplane Company in Seattle and his vision fueled the company until 1934. The Boeing Company didn't stay in Seattle but moved its headquarters to Chicago.

Boeing has become a national and international model of a modern aircraft company, manufacturing valuable carriers that transport the bulk of our air freight. That is still the case, but air traffic is under siege from many directions. This year the Boeing Company lost $40 billion, along with the U.S. airborne tanker deal.

It suffered this loss during a very protracted delay in launching the 787 *Dreamliner*. Several times during production, Boeing faced shortages in resupplying aerospace fasteners. Who wants a plane that is not fastened together properly? The *Dreamliner*'s parts are made all over the world. Delivering them via a 747 is not a big problem, but the parts supply is. Competition from Airbus continues, and who knows what will emerge when the air clears.

Oh well, it did leave Seattle.

Starbucks Wakes Up. In 1971, a recession year, Howard Shultz started Starbucks in Seattle. Customers came to think of the stores as a friendly place to check e-mail and linger over expensive coffee. At its peak, the company operated 10,000 retail outlets.

After briefly leaving the company, Shultz is back, trying to fix a multiplicity of problems. First, Starbucks faces serious competition from Dunkin' Donuts and McDonalds, which offer cheaper and increasingly competitive product. Second, Starbucks expanded its menu by adding food, resulting in a more complex supply chain. Third, recession thinking and expensive coffee don't necessarily go together.

Oh well, at least it is still in Seattle.

As times and customer demands change, companies such as Starbucks, UPS, and Boeing have to adapt and move to survive and compete. And cities such as Seattle are incrementally losing the business and logistics creativity that helped guide economic growth from the last century to the present. Let's hope this intellectual knowledge and innovative spirit don't leave town in the first decade of this century.

Otherwise people will remember Seattle for its precipitation, rather than the people and products that put it on the map. ■

TOYS“R”US HAS TROY HAMMOND. The next-gen video game revolution of 2006 sent product demand to an all-time high and put trusted retailer, Toys“R”Us, to the ultimate test. The number of new systems Agility’s Troy Hammond was handling broke records for Agility’s 13-year-old Direct-to-Store program. To secure the necessary courier lift, trucking support, and temporary labor for the fast-moving products, Troy’s team managed a multiple-carrier program. By systematically processing allocations on a store-by-store basis, Troy kept Toys“R”Us shelves stocked and gamers stoked. **TOYS“R”US HAS AGILITY.**

Troy Hammond
Retail Branch Manager,
Agility Seattle

Agility
A New Logistics Leader

READER

PROFILE

by Merrill Douglas

CLARK'S COUNTDOWN

NAME: Fred Clark

TITLE: Director of support services

COMPANY: Kingfisher Regional Hospital, Kingfisher, Okla., since 2006.

PREVIOUS EXPERIENCE: Air traffic controller, petty officer second class, U.S. Navy; buyer, inter-company plants, international, National Oil Well; senior logistician, recruiter, sergeant first class, U.S. Army.

EDUCATION: U.S. Army Quartermaster Basic Noncommissioned Officer Course and Advanced Noncommissioned Officer Course; AAS, distribution operations management, Coastline Community College, 2006.

Just What the Doctor Ordered

In January 2003, Army sergeant Fred Clark was on leave at his home in Fort Hood, Texas, when his colonel called him into the office. Clark, a senior logistician, learned that the Army was moving him to a different unit, which would deploy to Kuwait in 10 days. For 48 hours, Clark and his new unit worked nearly around the clock, packing everything they might need for a mission that–although they didn't know it at the time–would eventually take them to Baghdad.

Unit members weren't sure what they would find when they arrived in Kuwait. "We had to plan for every contingency we could think of," Clark says, "from sleeping cots and bathroom facilities to laundry arrangements and bullet inventory."

Clark no longer stocks bullets as part of his job. Today, he works as director of support services at Kingfisher Regional Hospital in Kingfisher, Okla., a small town northwest of Oklahoma City. The 25-bed critical care facility serves local residents who need a night or two of care, or who need quick attention in emergencies.

"If a farmer overturns his tractor, for example, we're here to bandage him up enough to move him by air or ambulance to the city's trauma center," Clark says.

Clark started at Kingfisher as director of materials management. After six months, he added managing plant operations personnel and housekeepers to his responsibilities. He's also in charge of ordering all supplies and making sure broken equipment is repaired promptly.

Like any supply chain professional, Clark strives to keep just the right volume of inventory in stock. That challenge is growing more complex

The Big Questions

What do you do when you're not at work?
I've been a photographer since I was 16 and my work is displayed at www.rainphotography.com. I also help coach my daughter's softball team.

Ideal dinner companion?
George Washington.

Anything in your career you'd do differently if you had the chance?
I would have gone to college right out of high school.

First Web site you look at in the morning?
MSNBC.com

If you didn't work in supply chain management, what would be your dream job?
Freelance photographer for *National Geographic*.

as the local population ages, increasing demand for medical attention. In a small town, forecasting demand for medical supplies means literally keeping a finger on the local pulse. “I feel my way around the community and check in with residents,” Clark says. “I read the news and watch weather reports.”

Weather reports are important because the region’s fickle climate complicates inventory management. In the cooler half of the year, the weather is apt to swing from 70 degrees and sunny one day to a snow squall four days later. When that happens, more people get sick. Also, if Clark places an order for supplies on Wednesday, and the snow starts to fly, he can’t be sure the shipment will make it through the storm to arrive at the hospital on Thursday.

“If it doesn’t, there won’t be another delivery until the following Tuesday,” he says. Then he has to hope the existing stock on the shelves can meet whatever needs may arise.

Although he’s out of uniform now, Clark’s work at Kingfisher Hospital isn’t all that different from the logistics duties he performed during most of his years in the Army.

“Both the hospital and the Army use expensive equipment that has to be kept in good condition,” he says. “When someone’s heart stops, for example, you need a working defibrillator close at hand. It’s equivalent to a soldier holding an M16; you have to make sure the gun works, so he’s able to defend himself,” Clark notes.

Fortunately for the residents of Kingfisher, their hospital’s supplies are in good hands. ■

TRENDS

by Joseph O'Reilly

TRENDTRACKER

Going With the Wind

Drifting and drafting across Wyoming's exposed high plains with a kayak and bicycle atop your car, you learn quickly why poor aerodynamics and fuel consumption are a real drag. Recurring gusts, the occasional high-wind advisory sign, and all-too-frequent stops at the gas pump are constant reminders that, all things being equal, the "Equality State" and wind are inseparable.

For U.S. businesses moving cargo across the Great Plains, aerodynamic angst is markedly more refined than the barrels of diesel trucks hemorrhage in fuel-siphoning headwinds. Blowing snow, poor visibility, trailer-toppling squalls, and road closures are further indications that wind alone is a force to be reckoned with.

But as the monolithic turbines sprouting up from the remote, arid flats of the Foote Creek Rim and the more fertile foothills of Medicine Bow National Forest alternatively suggest, wind is a valuable commodity–and one that is harvested with increasing regularity.

This dichotomy is readily apparent throughout the United States as transportation and logistics partners haul and hoist turbines across the country to help public utilities capture wind-generated electricity, while others adjust their rigs

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to reduce drag, recapture lost energy, and ration fuel spend. The institutional demands for renewable energy sources and more efficient fuel economy have precipitated a flurry of activity from global businesses exploring new ways to manipulate wind energy.

WIND INDUSTRY SPIN

The growing recognition and efficacy of wind-generated electricity has created a noteworthy industrial and supply chain shift. Picking up where European innovation began, the United States is currently installing more incremental wind capacity than any other country in the world (*see Figure 1*). But it is doing so at great economic and environmental cost, according to a recent study by researchers at the Sam M. Walton College of Business at the University of Arkansas.

Whatever value wind turbines may ultimately contribute to better rationalizing energy resources and use has been largely offset by the impact of transporting large tower, blade, and turbine components from overseas. This "green" cottage industry has placed considerable environmental and economic stress on offshore supply chains that are principally centralized among manufacturing clusters in Germany, Denmark, Spain, and India.

As technology continues to neutralize the price per kilowatt-hour disparity between wind- and coal-generated electricity, and as demand grows for larger turbine installations capable of shrinking this gap even further, manufacturers and utilities are collaborating with transportation and logistics providers. They are rethinking their supply chain footprints to more efficiently transport components to and within the United States.

"Reductions in the cost of producing wind energy are largely a result of increasing the size of the machines. Problems associated with shipping larger units, together with rapidly increasing demand, have created serious constraints in the supply chain," write Suzanne Ozment and Terry Tremwel, authors of the University of Arkansas study.

An average wind installation project can require 689 truckloads, 140 rail-cars, and eight ships to move heavy parts. The transportation factor alone

FIGURE 1

Global Wind Capacity

INCREMENTAL		CUMULATIVE	
1	**U.S.**	1	Germany
2	Germany	2	Spain
3	India	3	**U.S.**
4	Spain	4	India
5	China	5	Denmark
6	France	6	China
7	Canada	7	Italy
8	U.K.	8	Portugal
9	Portugal	9	France

Source: Wiser and Bolinger 2007

RESISTANCE IS FUTILE: In an effort to help carriers and shippers address rising diesel costs, International Truck and Engine Corporation's new LoneStar series features aerodynamic design modifications that can increase fuel economy by 15 percent.

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Vice President, North American Sales - USA

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contributes as much as 25 percent to total landed costs. To counter these inefficiencies, Ozment and Tremwel argue that greater reliance on collaborative logistics, including communication and coordination between manufacturers and various transportation groups, will facilitate efficient and sustainable operations and ensure greater profits.

The challenge of moving large machinery between continents, combined with already high transportation costs, has pressed the U.S. wind industry to begin shifting production closer to the United States. Expansion of manufacturing in the Western Hemisphere will reduce costs, streamline logistics, and possibly promote wind-power projects in other North American and South American countries, observe Ozment and Tremwel. Arguably, it will also spur further manufacturing growth within the United States as new-age wind farms replace old-time agriculture and other fading industries.

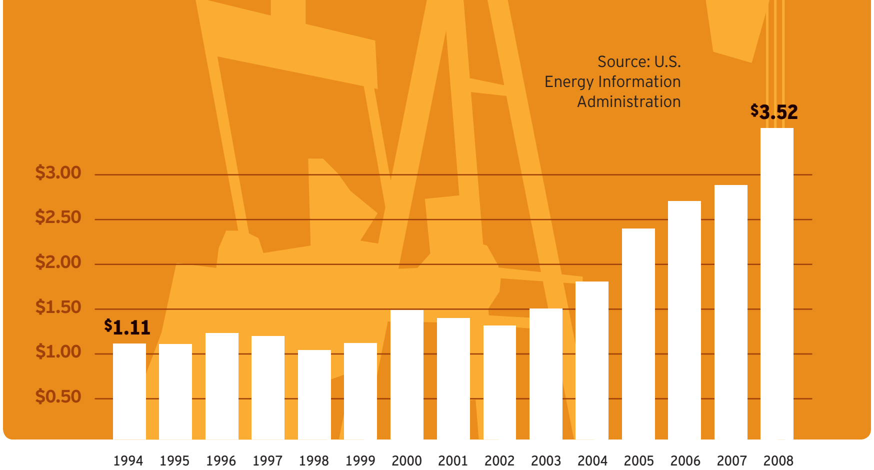
"While turbine manufacturers have remained international or coastal, blade and tower companies have just started expanding to the south-central region of the country in order to service growing demand in the region," they write. "Because blades and towers require expensive transportation equipment, these parts are typically manufactured locally in order to be shipped shorter distances."

As evidence of this emerging trend, the Port of Duluth recently witnessed a reversal of traditional trade patterns. In August 2007, it exported its first shipload of wind turbine blades manufactured in the United States for delivery to European wind farm projects.

Given the transportation and logistics challenges of transporting oversized turbine components, heavy haulers have weightier concerns than reducing wind drag. But for the majority of U.S. businesses moving freight across the globe and around the country, more efficient aerodynamics translates to better fuel economy. With diesel costs more than triple what they were 15 years ago (*see Figure 2*), businesses face considerable pressure to optimize freight spend by whatever means necessary.

FIGURE 2 **U.S. Diesel Retail Sales by All Sellers**
(dollars per gallon)

If freight shippers need any more incentive to explore new technologies that increase equipment aerodynamics and reduce fuel consumption, they might consider the escalating rise of fuel costs. Over the past 15 years, diesel prices have more than tripled to $3.52 per gallon through the first quarter of 2008.



Truck manufacturers, for example, are making great strides in streamlining heavy-haul vehicles to increase aerodynamics. By modifying tractor and trailer designs over the past two decades they have been able to reduce the drag coefficient (a measure of wind resistance) of a typical freight truck from 0.80 to 0.65–a nearly 20 percent improvement, according to the U.S. Environmental Protection Agency's (EPA) Smartway Transport Partnership. Additional efforts to improve aerodynamics can result in a further 20 percent reduction in drag coefficient, which could raise fuel economy as much as 15 percent at highway speed, the EPA reports.

THE WINDS OF CHANGE

Manufacturers such as International Truck and Engine Corporation are taking the lead in building more streamlined vehicles. Its new LoneStar series features an aerodynamic hood, grille, air cleaners, and side skirt that the company projects will be 15 percent more fuel efficient than traditional long-nose classic trucks, equal to an annual savings of $3,000 to $15,000 or more, depending on miles driven and fuel costs.

Over-the-road shippers are also exploring ways to retrofit existing fleets to perform more efficiently. Stop & Shop Supermarket's drop and hook regional trucking operation, a Smartway Transport partner, has been experimenting with roof fairings that push air up and over the cab and trailer to reduce drag, says Mark Gangemi, manager of fleet maintenance for the Quincy, Mass.-based company.

"To identify the pros and cons of roof fairings, I performed a fuel study on one tractor without a roof fairing. We used

CONTINUED FROM PAGE 18

our best driver to ensure consistent performance with this one tractor. Traveling under various weather conditions and carrying different loads, we averaged 6.5 miles per gallon," he reports.

Gangemi then installed roof fairings on the same tractor. Using the same driver, he was able to boost fuel efficiency to 7.0 mpg, which he acknowledges was an excellent result.

DRAFTING INTO THE FUTURE

While U.S. surface freight shippers and carriers uncover new ways to reduce wind drag and increase fuel efficiency, some in the ocean industry are taking a page from the past. Sailing with the trade winds is by no means a novel concept for an industry that has historically relied on nature's caprice to move freight across hemispheres. But the means by which today's ocean carriers are leveraging wind-generated power prove innovation can be as simple as hoisting a sail.

SkySails, a Hamburg, Germany-headquartered company, aims to help ocean carriers do just that. It manufactures a towing kite wind propulsion system that allows cargo ships to save as much as 35 percent in fuel costs, depending on wind variables and time deployed. Under optimal conditions, SkySails predicts fuel consumption can be temporarily reduced by up to 50 percent.

The system features a fully automatic, pilot-controlled steering system that aligns the kite according to wind direction, wind force, ship route, and ship speed. The company is currently in a pilot phase, testing the system in commercial shipping operations.

Cutting energy consumption 50 percent is "pie in the sky" economics for most cargo shippers. But as fuel costs continue to soar, even incremental efficiency gains can have an impact on reducing overall transportation spend.

Minimal investments in roof and side fairings, and cab extenders that close the gap between tractors and trailers, go a long way toward increasing fuel efficiency. For a typical combination truck, improving aerodynamics by 15 percent can cut annual fuel use by up to 2,430 gallons and save up to $3,644 in fuel costs, according to the Smartway Transport Partnership.

With imagination and innovation, the U.S. wind industry might provide some extra force of its own. If component manufacturing shifts its course closer to the United States, as Ozment and Tremwel suggest, and the push for renewable energy sources continues its swift pace, U.S. shippers and carriers may benefit from another windfall.

In 2007, Xcel Energy, a Minneapolis-based utility, and the U.S. Department of Energy's National Renewable Energy Laboratory opened a facility at the National Wind Technology Center outside Boulder, Colo., that uses electricity from wind turbines to produce and store pure hydrogen.

"Converting wind energy to hydrogen means that it doesn't matter when the wind blows because its energy can

SkySails' towing kite wind propulsion system can help ocean carriers reduce fuel consumption by 50 percent under optimal conditions.

CONTINUED FROM PAGE 20

be stored on-site in the form of hydrogen," says Richard C. Kelly, Xcel Energy chairman, president, and CEO. "By marrying wind turbines to hydrogen production, we create a synergy that systematically reduces the drawbacks of each. Intermittent wind power is converted to a stored fuel that can be used any time, while at the same time offering a climate-friendly way to retrieve hydrogen, to power our homes and possibly cars in the future."

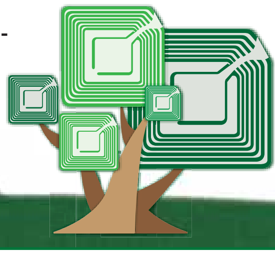
Greater capacity and efficiency in converting and storing wind-generated power as hydrogen, combined with emerging hydrogen fuel enhancement technologies, could give shippers and transport companies a cheap and reliable fuel lifeline as they confront fluctuating oil prices. If nothing else, it provides businesses with further incentive to check which direction the wind industry blows–then draft accordingly. ■

Green Hype Good for RFID

With all the speculation that has tagged radio frequency identification (RFID) technology during the past few years, it's about time the industry captured some hype support from another supply chain buzzword–sustainability.

The use of RFID technologies in green-related applications is a promising market segment, reports AIM Global, a Warrendale, Pa.-based industry trade association that covers automatic identification and mobility solutions. It predicts consumers will see increased RFID exposure in environmentally friendly programs worldwide over the next 18 months.

Currently, businesses use RFID to advance the efficiency and effectiveness of numerous environmental programs, from monitoring vehicle emissions and collecting recyclable materials to reusing packaging resources and electronic parts and disposing of electronic waste. In addition, RFID provides greater supply chain visibility by helping companies more efficiently track and manage inventories, thereby reducing unnecessary transportation movements and fuel usage.



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GLOBAL LOGISTICS

by Joseph O'Reilly

Central America: Changes in Attitudes, Changes in Latitudes

The allure of Central America and the Caribbean as a New World for exploration beguiled 16th-century European traders eager to exploit its wealth of natural resources and labor. Today, the region is attracting colonization of a new order and under its own terms–and U.S. trading partners are equally captivated.

As China sourcing becomes more complicated, adventurous businesses need only look southward, beyond Mexico even, to an emerging group of countries ripe for picking–as well as sorting, distributing, manufacturing, and other value-added logistics activities.

Historically a strong exporter of agricultural products and natural resources, recent economic growth in Middle America–the region comprised of Mexico, the countries of Central America, and the West Indies–has principally tracked the course of U.S. demand for alternative offshore manufacturing and outsourcing locations. Maturing inter-America trade policies–notably The Dominican Republic-Central America Free Trade Agreement (DR-CAFTA) and the Caribbean Basin Trade Partnership Act (CBTPA)–and the promise of bringing sourcing and manufacturing activities closer to home to increase reliability and responsiveness has placed Middle American

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markets squarely in the scope of U.S. businesses.

As an example, the U.S. apparel industry is taking measured steps, threading countries such as Guatemala, Nicaragua, and Honduras into its broader supply chain fabric. This sourcing shift occurs as U.S. consumers spend more money on clothing and the apparel manufacturing industry loses more market share to offshore interests.

Much of this manufacturing activity has been pushed offshore to Asia-Pacific countries where mass production capacity and cheap labor weigh favorably in reducing direct manufacturing costs. But growing pockets of textile and clothing production within Middle America reflect an emerging trend in the U.S. clothing industry. Retailers face increased pressures to have product in stores, and lengthening supply chains compounded by rising transportation costs, threaten timeliness, efficiency, and economy.

COST/BENEFIT BALANCE

Retailers and manufacturers are looking to create better balance in their supply chains by weighing the costs and benefits of sacrificing cheaper labor against shorter transport times, therefore creating more latitude in their supply chains, observes Mike Todaro, managing director of the American Apparel Producers' Network, an Atlanta-based non-profit business network of more than 600 apparel companies.

Sourcing decisions generally depend on "whether it's a nickel cheaper down the road," he notes. Even so, businesses need to consider both the direct and indirect costs of their location choices. For example, what is the actual benefit of moving production farther inland in China to tap cheaper labor when you have to consider additional transportation and warehousing costs, varying provincial rules and regulations, and less quality control and assurance visibility? At some point, hidden costs begin to shift the economic balance from labor to location. In this regard, Middle America holds a distinct advantage over Asia.

"The primary advantage of Central America is its proximity to the U.S. market," says Jose Luis Perales, senior program associate at the Woodrow Wilson International Center for Scholars, Washington, D.C. "Realistically it cannot compete with China and other Asian countries on labor cost. It will always be a zero sum game–cost versus time to market."

STEPPING STONE

The ongoing development of the apparel sector in Central American and Caribbean countries subtly serves as a stepping stone to growth and expansion in other industries.

"Apparel is generally an entry-level manufacturing industry for small nations. Labor chases low-cost industry, so the learning curve is short," Todaro says.

Some maquila manufacturing sectors in El Salvador and Costa Rica, for example, are developing more sophisticated

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niches and empowering economic development.

"Costa Rica has a favorable business environment, good labor, and political and social stability; El Salvador has the right policies in place; and the Dominican Republic has successful maquila producers," Perales says.

The maquila phenomenon, however, poses some obstacles to sustained economic growth. Industrial development in Central America and the Caribbean is largely differentiated by domestic industries wholly supporting local demand and maquilas importing raw materials, then exporting finished product.

"The maquila, in some regards, operates as a separate country. It is more integrated with foreign than domestic demand patterns," says Perales.

One consequence of this progression is that countries essentially create two economies that exist and evolve independent of each other. The Dominican Republic's export sector is profitable, for example, but domestic industries are hurting. If and when exports take a southward turn, the rest of the economy suffers, says Perales.

The maquila phenomenon poses obstacles to sustained economic growth. Industrial development in Central America and the Caribbean is largely differentiated by domestic industries supporting local demand and maquilas importing raw materials, then exporting finished product.

As a result, not building links between maquila and domestic industries can be risky because it has a negative influence on attracting foreign investment.

"Policy is the one factor that can build these links and attract business and foreign direct investment," Perales explains. "It's not about having lax regulations; it's about having good regulations that tie together management, labor, standards, and training. It's about creating a fertile and accommodating environment that can embrace foreign companies and their best practices."

On the plus side, though, he sees domestic industries in the Dominican


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Republic, Honduras, and Guatemala beginning to develop export capabilities that will help diversify and stabilize economic growth.

INCENTING U.S. INTEREST

Trade legislation is also leveling the playing field. "Currently, nothing in South America makes sense for U.S. apparel companies. That might change with legislation. But there is a significant volume of trade with Central America and the Caribbean," says Todaro.

The ratification of DR-CAFTA in 2005, which added the Dominican Republic to the existing free trade agreement between the United States, Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua, also promises to expand economic ties, facilitate cross-border trade, and further incentivize U.S. businesses to invest and locate in the region.

CAFTA gave Central American nations a lifeline to survive the China phenomenon, not compete with it, notes Perales. Its impact has otherwise been negligible as countries continue to adapt and evolve their operating procedures to meet the agreement's requirements.

"Apparel and accessories firms report that CAFTA has slowed delivery time because of the additional origin certification now required for the import of apparel to the U.S. market," according to a recent report by the International Food Policy Research Institute (IFPRI).

Similar difficulties integrating maquila-centric economies into more coherent self-supporting networks have further muted the trade agreement's early potential. At the same time, these shortcomings raise the stakes for governments to enact trade policies that leverage the region's collective potential as a value-added logistics location.

"Increased Central American integration would also improve delivery times in the region because the various processes involved in apparel production are spread among different countries," the IFPRI report adds. "Within each country, cooperation among existing maquilas could help the sector obtain higher numbers of full-package orders. By spreading the order among several firms, as a group they could achieve the delivery time demanded by the U.S. retailer and continue producing previously scheduled orders."

This type of specialization has yet to evolve to the extent it has in Asia, but the tide appears to be turning as U.S. businesses reconsider global sourcing options and Central American and Caribbean countries realize that surviving China may not be their end game.

For Todaro, the area's reckoning is clear: "The competition is the Far East, so these countries must compete as the New South," he says. ■

Olympic Bypass Takes Off

The recent implementation of a new air route over China, designated B208, will reduce air traffic congestion during the Beijing Olympics and arguably have airfreight shippers breathing a little easier.

The Olympic Bypass routing will alleviate air traffic delays and congestion, as flights from Europe to Shanghai, Guangzhou, and Hong Kong will no longer have to redirect through Beijing.

"The Olympic Bypass is the result of numerous discussions we have had with the Chinese authorities since 2006," says Giovanni Bisignani, director general and CEO of the International Air Transport Association. "By shortening the route 60 nautical miles, we will save about 91,000 tons of CO2 annually."

While introduced to counter Olympic-related congestion, this is the latest in a series of major permanent improvements to China's air traffic management infrastructure.


EASY
MADE IN CHINA


LOGISTICS
WORLDWIDE

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ITMATTERS

by Kelly Killingsworth

Improving Fleet Management Performance

The nation's trucks hauled 10.7 billion tons of freight in 2005, according to the American Trucking Associations' truck tonnage index. This figure represents nearly 70 percent of tonnage, including manufactured and retail goods, carried by all domestic freight transportation modes. Yet many in the trucking industry have been slow to recognize the strategic importance of transportation optimization and the value it can contribute to overall business performance.

Despite rising costs, ineffectual asset utilization is rife across the industry, characterized by inefficient routing, haphazard route assignments, and empty backhauls from product delivery runs. At the heart of these issues lies the absence of total visibility across the transportation network, as well as a lack of strategic planning, collaboration, and connectivity–all of which can be achieved using advanced transportation management technology solutions.

A TWO-PART PLAN

Because fleet management plays a key role in transportation planning and execution, optimizing the network–whether private, dedicated, or 3PL-contracted–can help drive profits without compromising efficiency.

The scope of a fleet optimization initiative can be defined in two parts: shipment planning and dispatch optimization. Shipment planning makes it possible to create efficient loads within the scheduling process and maximize asset utilization while complying with industry regulations. Dispatch optimization is a continuous process that enables ongoing evaluation and allocation of resource assignments and loads, based on up-to-the-minute knowledge of conditions and events.

Together, these capabilities help ensure 360-degree visibility and integration of the entire transportation network, and can help shippers and their carrier networks manage operations more efficiently and productively.

For example, optimizing driver and route assignments at the outbound or store delivery end, as well as the inbound or materials/supplies end, can help reduce empty or partial backhauls. In addition, integrating both the dedicated fleet and common carrier network can provide total network visibility and allow for real-time reactions, interactions, and predictive event management to reduce inefficiencies, avert potential bottlenecks, and head off disruptions that threaten on-time delivery and customer service.

REAPING THE BUSINESS BENEFITS

The keys to successfully transforming the transportation network are dynamic route optimization, maximum asset utilization, and real-time information sharing. Through the intelligent application of technology, top performing organizations have increased the productivity and profitability of their transportation networks, while significantly reducing overall costs–despite the challenges.

In fact, after implementation, many shippers report cost savings totaling millions of dollars. These savings result not only from significant improvements in fleet productivity, detention charges, and regulatory compliance, but also from back-office time and labor savings due to more streamlined business process flow.

For those who have not yet explored the potential of transportation management solutions, maybe it's time to take a more holistic view toward overcoming today's challenges by developing a strategic plan of action. ■

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VIEWPOINT

by John Haber

Four Fast Ways to Cut Transport Spend

Transportation costs have become a bullish line item in virtually every corporate budget. Fuel costs have hit an all-time high and companies' shipping needs are only becoming more complex. No wonder carriers are raising rates and transportation costs are rising.

But the truth is, many companies simply lose control over transportation costs as shipping demands grow more complex. Costly transportation spend management mistakes include:

- **Auditing, or lack of.** It's no secret that some carriers intentionally issue cryptic invoices and inaccurately bill shippers at an astounding rate. Without proper audit procedures in place, companies can waste an alarming percentage of their overall transportation spend.
- **Failing to benchmark spending.** Many transportation managers are surprised to learn that a company with the same shipping characteristics may pay up to 50 percent less for the same services. An average company that spends $1 million annually on transportation loses approximately $1,000 daily if it does not benchmark spending.
- **Leaving refund dollars on the table.** Companies throw away profits when they fail to claim refunds for service failures. While it can be a cumbersome process, it's well worth the effort.
- **Choosing the wrong shipping methods.** No matter how large their logistics department, many companies still fail to optimize distribution networks and choose practical shipping methods.

RECOVERING TRANSPORT SPEND

Fortunately, logistics managers can take four quick actions to get a better handle on transportation cost increases.

1. Justify your carriers' costs. The difference between what you and your competitors pay for shipping often comes down to profit margin and savvy. Receiving a fair, justified rate from your carrier requires a detailed understanding of your internal shipping characteristics. You can gain that understanding by determining your average shipment weights, dimensions, and zones; pickup and delivery densities; and the type and frequency of accessorials.

2. Debunk discount myths. Discounts can be plagued with hidden costs. Your contract may include a 20-percent discount on all packages weighing less than five pounds, for example. But, if you didn't read the fine print stipulating minimum charges apply, you may receive only a five-percent discount.

The key to avoiding discount ploys is analyzing the "effective incentive" based on your own shipping characteristics rather than the "contracted incentive," which is a one-size-fits-all carrier approach to discounting. Also be wary of additional hidden costs such as fuel and accessorial surcharges.

3. Check the addendum/contract language. Addendum fine print can be a major cost pitfall. Engaging a third party to review contracts can mitigate this risk. Regardless, ask your carrier the following questions to see how they impact your shipping expenses:

- Do all products contribute to discount calculations, especially with revenue commitment discounts?
- Are net charges or gross charges used when calculating rates?
- Do accessorial charges contribute?
- Do discounts apply to all different types of billing–for example, prepaid, freight collect, and third party?
- If the contract uses rolling averages, what is the time period specified? Does that coincide with seasonal shipping highs and lows?
- How do minimum charges impact discounts?
- What is the process for reviewing contracts and addendums?

4. Evaluate the competition. Periodically evaluating competing carriers is a must. Many companies select a carrier, then blindly renew its contract. You don't have to be unhappy with your service to justify an evaluation.

It's important to keep carriers on their toes. You may be surprised to see a positive impact on customer service levels. ■

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SUPPLY CHAIN SECURITY

TAKING CARE OF BUSINESS

by Dan Gardner

Technology Standards Hold the Key to Security

Since the advent of globalization, logisticians have sought a technology that provides real-time tracking of goods, documents, and information across supply chains. Considered a luxury for many years, the development of a Supply Chain Technology Standard (SCTS) has become an operational mandate to meet the need for heightened security. Unfortunately, no single technology creates real-time, end-to-end visibility of the international movement of goods.

Today's global supply chains are often physically fragmented and technologically disconnected. Deploying a global standard to monitor cargo flows via Radio Frequency Identification (RFID) and adopting a barcode to flag corresponding documentation will create the visibility necessary to enhance supply chain security. Creating and implementing this solution requires a cooperative effort among government, business, and academia.

BIG PLANS

Admittedly, the technological, financial, and infrastructure requirements of such an endeavor are daunting. From a commercial perspective, however, it becomes clear that the investment will not only reap security benefits, but also increase supply chain productivity. Greater visibility allows for forecasting, planning, and execution improvements, all of which drive down inventory levels, carrying costs, theft, product obsolescence, and lost sales opportunities.

Also, an SCTS will eliminate the need for supply chain participants to manually update proprietary and redundant tracking systems, creating efficiency enhancements not seen since desktop computers were introduced. Port, airport, truck, and rail facilities would enjoy cargo velocity increases through more efficient asset use and bottleneck reduction.

Despite the security and productivity benefits of adopting a global standard, companies will need further enticement to forego existing technologies and invest in an SCTS. First and foremost, economies of scale have to be reached to make the use of RFID financially possible. Governments can accelerate implementation by offering tax credits on investments in related software, hardware, and training; giving preferential duty treatment to participating countries; and reducing processing fees to importers that adopt the technology.

The good news about this endeavor is that a lot of work has already been invested in creating a global technology platform. Next, that knowledge–found in universities, government agencies, non-profits, and international organizations–must be brought to the project. This resource-sharing requires forming a coalition with technological and organizational representation from all areas of the global supply chain infrastructure. With a multi-country steering committee in place, this coalition would be charged with selecting, deploying, and managing the SCTS.

THE INTERNET MODEL

It would serve the consortium well to model its development efforts after the approach taken by the founders of the Internet. A matter of historical record, the Internet's success can be attributed to the selection of a packet-switching technology known as Transmission Control Protocol/Internet Protocol (TCP/IP). Universal acceptance of this standard was born of a collaborative effort among government, business, and, especially, academia.

The technology is in place, the talent exists, and the playbook is available to bring the SCTS to fruition. What remains to be done is assemble the team and establish the rules of the game. If that can be achieved, the social and commercial impact of such an effort will be surpassed only by the birth of the Internet. ■


BEST LABOR
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LOOKING FOR AWARD-WINNING PERFORMANCE INCENTIVES FOR YOUR WAREHOUSE WORKFORCE?

THE NOMINEES ARE:

Measuring Productivity

Setting Labor Standards

Implementing Gainsharing Programs

Training Workers for Results

Promoting Safe Practices

AND THE WINNER IS... EVERYONE

BY LISA HARRINGTON

Warehouse labor deserves red carpet treatment; in fact, the cost of labor constitutes about 65 percent of most warehouse facilities' operating budgets. But while labor is a critical resource, almost 20 percent of warehouse workers responding to a recent Gallup poll describe themselves as "actively disengaged" from their work. As many as half of those surveyed were doing just enough work to get by.

"Market or customer demand notwithstanding, warehouse quality and efficiency cannot be at their peak when so valuable a resource is so poorly applied to the task at hand," says Pat Kelley, CEO of consulting firm Labor Development Group, Evanston, Ill.

The key to drawing out the best performance possible is to align warehouse worker motivation with management objectives. "You have to make it worthwhile for hourly employees to want to make the same decisions as a manager," Kelley observes. "In short, you have to engage individual workers in the process in such a way that everyone benefits."

Leading private and third-party warehouse operators have developed many strategies and tactics for maximizing labor productivity while ensuring greater job satisfaction. The following five approaches are the lead performers, nominated for their ability to generate direct bottom-line benefits.

1 Measuring Productivity.

When it comes to warehouse productivity, what you measure improves. But measuring and improving warehouse productivity does not have to involve exhaustive time and motion studies.

"Warehouse and transportation management systems already capture productivity information," notes Mark Cleveland, senior operations manager, supply chain execution, Allstate Insurance Co., Northbrook, Ill. "The IT department can mine these systems for good intelligence on warehouse throughput and supply chain performance.

"Achieving Six Sigma levels of perfect order and inventory accuracy starts with key performance indicators," he adds. "Understand what drives warehouse performance and identify bottlenecks and failures. Then involve employees in identifying alternatives and solutions. Their participation helps ensure successful buy-in and implementation."

To benchmark productivity at its facilities, Weber Distribution, a third-party logistics provider based in Santa Fe Springs, Calif., runs profit-and-loss statements for each customer. Its labor productivity management software compares actual productivity to the benchmark at the customer level.

"The system displays the actual time workers spend on the radio frequency (RF) gun–unloading and loading, receiving, picking, and putaway," explains Carl Neverman, Weber's vice president of client solutions.

Each Weber facility publishes a daily report tracking labor productivity against the benchmark. "At the start of their shift, warehouse workers see a report on the previous day's performance," Neverman says. "If everyone falls into the report's 'green zone,' we had a great day. If workers fall into the 'red zone,' we look into why they didn't meet the benchmark. We peel back the onion, figure out what they were doing to cause the non-RF time, and work with them to improve."

2 Setting Labor Standards.

Third-party logistics provider Saddle Creek Corp., Lakeland, Fla., traveled the time and motion study route when it rolled out a new labor management system (LMS) in a client-dedicated 900,000-square-foot food and beverage distribution center in Atlanta.

"Engineers measured every function and step along the process flow," recalls Robert Pericht, senior vice president of operations for Saddle Creek. "They

GET SMART. **Kane is Able trains its warehouse workers at Kane College, an old crossdock building it retrofitted into classrooms. The college program includes new hire orientation, specific job skills such as forklift driving, general skills building, and leadership training.**

measured actual performance of both seasoned veterans and new employees."

After the data was collected, a Saddle Creek project team–which included hourly warehouse workers–agreed on specific steps or processes they could improve. Based on the updated processes, they set new work standards. But the 3PL went much further than just updating work tasks.

As part of the overall labor standards effort, Saddle Creek critiqued the Atlanta facility layout and process flows in every activity area. The project team also reviewed the facility's quality management program, safety record, and equipment.

"We changed everything," Pericht observes. "We improved work shifts, invested in new equipment, changed the way we unload trucks and put stock away, and reconfigured the warehouse to operate more efficiently. We conducted a complete tear down and holistic rebuild of the way the warehouse functions."

In concert with the new work processes, Saddle Creek established an incentive pay program based on how workers perform against standards. The pay-for-performance program is tightly coupled with and dependent on quality and safety performance.

Since going live with the LMS in December, productivity at the Atlanta DC has increased more than 20 percent. Additionally, the facility's need to draw on temporary labor services to handle spike volume periods has dwindled significantly, as has employee turnover. "The facility's safety rating increased from an also-ran level to one of the best in the company," Pericht adds.

3 Implementing Gainsharing Programs.

Many companies reward warehouse employees for good performance by sharing the fruit.

Gainsharing programs compare actual performance of work at the individual level against a pre-determined expectation, explains Ronald Hounsell, COO of the Labor Development Group. These may be historical averages, engineered standards, or something in between. When workers perform above those expectations, they are compensated the following month by an increase in their hourly pay rate for the whole month. This pay improvement is funded by productivity gains.

If a gainsharing program is well structured, the majority of workers can and do earn some level of bonus. A small improvement, as little as five percent above the acceptable minimum performance–what equates to about three minutes per hour saved, sustained for one month–earns the employee a 25-cent hourly raise the following month.

"Twenty-five cents is a big deal when all warehouses compete for the same labor pool, and workers change jobs for as little as a 10-cent hourly raise," Hounsell points out. *(The table below illustrates gainshare payouts per hour in an order filling example.)*

Three different distribution systems comprising 16 DCs in the True Value Hardware network tested simplified gainsharing over a five-year period.

At a single True Value network facility, the one-year gainshare payout totaled $361,000. "Productivity improvements saved more than 66,000 hours over the year, equivalent to 32 full-time employees," Hounsell says. "The company's share of savings for that facility totaled nearly $1.07 million."

Weber Distribution also reaps huge dividends from gainsharing. The 3PL instituted a "Triple S" program that pays bonuses to employees for safety, sanitation, and security performance. As a result of this program, one facility has operated for 15 years without lost time due to an accident; other facilities have gone 13, 10, and eight years, respectively, without incident.

"We pay workers an incentive if they abide by our safety rules, take thoughtful care and custody of client products and company assets, maintain good housekeeping, and keep the facility and customer product secure," Neverman notes. "We put up to 35 cents an hour into a kitty and pay out bonuses two weeks before Christmas. If a facility performs well, employees can earn up to an $800 holiday bonus. This program has reduced insurance rates significantly, and is a big hit with employees."

Some gainsharing programs take an "open book" approach. Boston-based Barrett Distribution Centers Inc., for example, gives employees complete access to company financials. Workers receive weekly updates on how the company is doing, and what the bottom line looks like. They participate in a bonus plan keyed off Barrett's financial performance.

Six months prior to starting the open book program, Barrett began training employees so they would understand how it works. "We started by teaching workers how to read a financial statement," recalls Tim Barrett, the company's COO. "Then we discussed our goals for the coming year. Our priority in 2008, for example, is to improve

SAMPLE ORDER FILLING RATE TABLE (LINES PER HOUR)

Under a gainsharing program, even a small improvement in productivity adds to warehouse employees' paychecks. There is no limit to the "gains" to be shared, as long as quality and safety are not compromised.

	Percentage Above Base (130 picks/hr.)								
PRODUCTIVITY INCREASE	10%	15%	20%	25%	30%	35%	40%	45%	50%
TOTAL # OF PICKS/HR.	143	149.5	156	162.5	169	175.5	182	188.5	195
ADDITIONAL PAYOUT/HR.	$0.25	$0.50	$0.75	$1.00	$1.25	$1.50	$1.75	$2.00	$2.25

SOURCE: Labor Development Group

productivity six percent, measured by units and lines per hour."

Barrett motivated employees by describing how meeting the improvement goal affected different budget scenarios. "We showed them the current budget," says Barrett. "Then we showed them a budget with six-percent productivity baked in, the resulting bottom line, and how much their bonuses would increase. The difference means hundreds of dollars more in each employee's paycheck every year. That got their attention."

Feedback to employees about their performance is immediate under Saddle Creek's gainsharing program. The company posts individual worker performance daily at each facility. "Posting performance information eliminates guessing or misunderstanding how every individual is performing compared to the goal," Pericht says. "If workers are not reaching their goal, the management team uses their individual performance data as the basis for coaching them to achieve improvement."

One Saddle Creek employee responsible for unloading trailers, for example, could not reach a 90-percent productivity goal, no matter how hard he tried. "Understandably, he was growing frustrated," Pericht says. "So the supervisor shadowed the worker and discovered he had added a step to the unloading process. Once we identified the problem, the employee achieved the 90-percent goal, and has remained there ever since."

Weber Distribution's "Triple S" program pays workers an incentive for outstanding safety, sanitation, and security performance. In addition to being popular with employees, the program has reduced the 3PL's insurance rates significantly.

Barrett's incentive plan delivers benefits not just to the company, but also to its customers. "Barrett's approach to managing its workers trickles down to us," says Brad White, president of Midnight Pass, a Boston-based specialty pet products online retailer. "Barrett employees share a sense of profit participation with us. For example, we recently sold seven million units of one product line, but had a return rate nine to 12 percent higher than normal. Barrett initiated a recovery program to handle the returns, and we got back 90 percent of the revenue that we would have lost.

"We took in 14,000 returns and discarded only 700," White continues. "That represented about $200,000 in recaptured revenue for us. Barrett's employees knew these returns were important to us. Their help kept us from suffering a loss."

Open book delivers the best results among all types of incentive programs, according to Tim Barrett. "Every program we'd tried prior to open book ended up incenting behavior that we didn't intend," he acknowledges. "If the incentives focus too heavily on productivity, employees may skimp on quality."

Consider this example. Barrett implemented a new warehouse management system about four years ago. The team working on it was promised a 50-percent bonus if they got the system up and running within a certain time frame. "The timeline became the overriding concern," Barrett recalls. "The team pushed forward to implement the system before the workers were ready, creating conflict.

"If we had the open book incentive program in place, and focused on bottom-line profitability instead of the deadline, we would we have worked together more cohesively," Barrett notes. "We would have decided whether the deadline was more important than delaying the project to another quarter to ensure a smooth transition.

"To create a true team environment, the goal should be to motivate workers to do what's best for the company and not push one metric to the detriment of another," he adds.

4 Training Workers for Results.

Thorough employee training is the foundation of any warehouse labor productivity improvement effort. Leading companies that invest heavily in training net high payoffs.

That's what happened to Kane is Able, Scranton, Pa., when it launched Kane College, retrofitting an old cross-dock building into classrooms. Since the college's inception four years ago, the 3PL has sent nearly 4,000 associates through the training program's various offerings – job orientation; leadership training for first-line supervisors; specific job skills training; and overall skill building. Kane College works with the University of Scranton to develop and deliver its programs, and receives training grants from the state to offset nearly all operational costs.

Training also takes center stage at retailer Tractor Supply Co., where new team members participate in orientation, safety, equipment, and process training, according to Larry Corrigan, the company's director of distribution. Tractor Supply is the largest retail farm and

Workers at Weber Distribution's facilities see daily performance reports generated by a labor productivity management system. If reports show workers are not hitting their benchmarks, Weber managers work with them to achieve improvement.

ranch store chain in the United States, operating 764 stores in 43 states. The Tennessee-based company runs five private distribution centers, all located east of the Rocky Mountains.

"Team members are assigned a training coordinator–an experienced warehouse employee to guide them through training," Corrigan says. "New hires have a single point of contact to answer any question."

Duration of training depends on the employee. "People catch on at different rates," Corrigan notes. "In two or three weeks, some workers are well on their way to meeting productivity standards. For other employees, it takes 45 to 60 days. It depends on the individual and on the team."

Murphy Warehouse Co., Minneapolis, trains its workers in the intangible as well as the tangible. "We train employees on integrity, responsibility, and accomplishment – to think, not just do," says Richard Murphy, CEO of the company, which operates about three million square feet across Minnesota.

"We also train workers to require minimal supervision," he adds. "Our overall ratio of hourly workers to managers is 20:1. We operate 12 facilities and have managers in only three. Lead warehousemen run the other facilities, cutting way down on administrative overhead.

"Our workers love the sense of ownership," Murphy continues. "If workers have been driving a forklift for 20 years, how do you keep the job from becoming boring as hell? The answer is, give them responsibility."

5 **Promoting Safe Practices.** "Unless you give employees quality tools and the right environment in which to do their job, they won't know how to be safe, and you can forget about efficiency and productivity," observes Mark Richards, vice president, Associated Warehouses Inc. (AWI), Orange, Calif. "People want to do a good job but they can't if you supply them with broken tools or a dangerous work environment."

Ergonomics considerations are playing an increasingly important role in promoting employee safety. Leading companies are redesigning their workplaces to reflect greater awareness of physical factors.

Murphy Warehouse, for example, redesigned its railcar unloading/loading facilities for safety reasons. The company handles about 10,000 railcars a year at several of its buildings. To reduce the risk of injury, Murphy brought the sidings indoors.

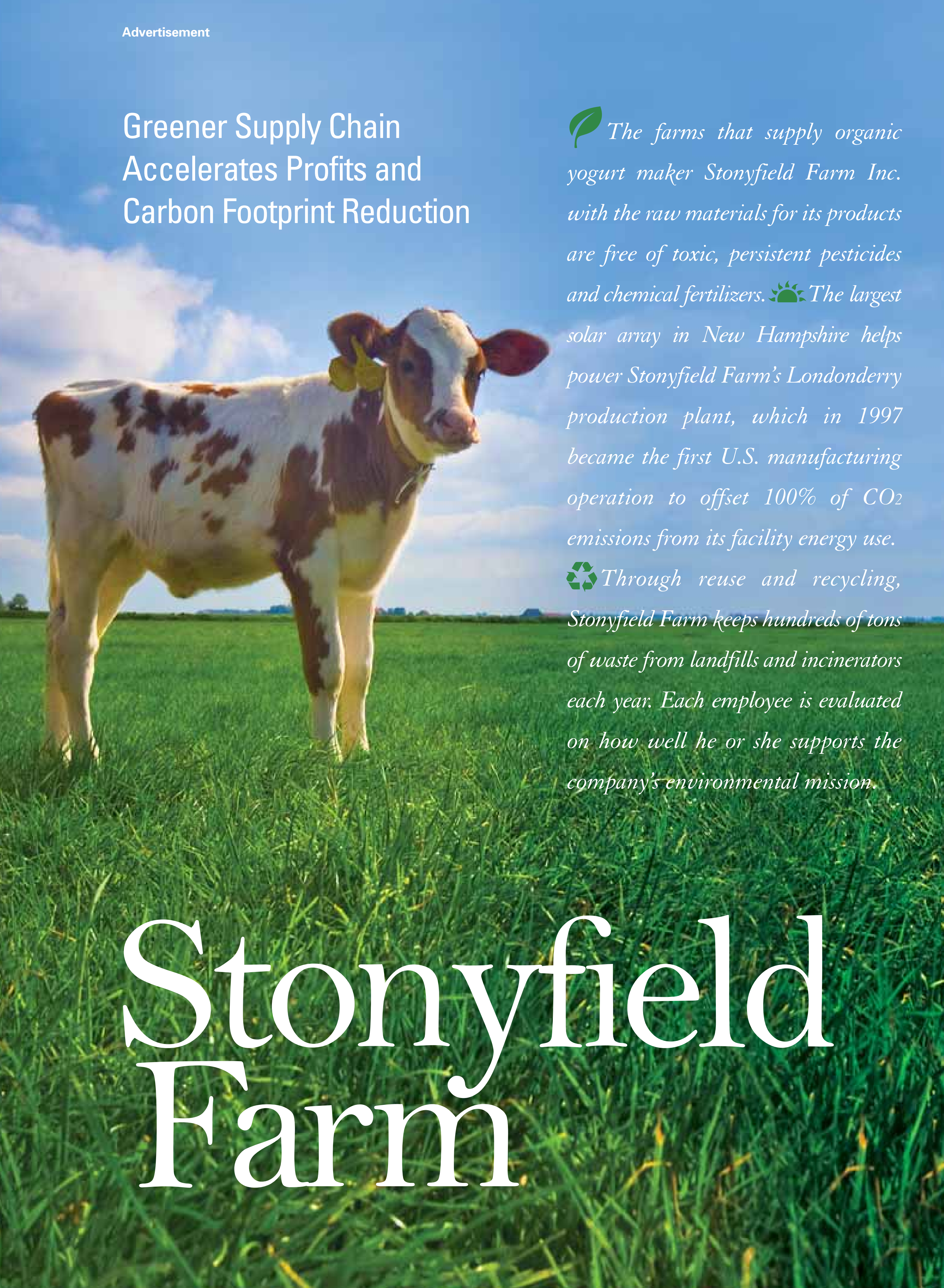
"Minnesota often faces ice and snow conditions," says the CEO. "Bad weather can make railcar unloading dangerous." Now, the redesigned facilities can handle up to 18 railcars under the roof at one time.

Murphy also rebuilt its rail sidings to reduce the normal three- to four-foot clearance gap between railcar and dock to 12 inches. With a four-foot gap, the warehouseman has to stand on the tracks, reach up, and haul on the door lever in order to open the railcar door, which is often tough to budge. "This puts the worker in the worst ergonomic position possible and can easily cause injury," Murphy notes.

NOT ROCKET SCIENCE

Many of these labor productivity measures are not new. But with more effective data coming from warehouse information systems, companies can do a better job getting the most from their warehouse workers.

"Improving labor performance is not rocket science," concludes Richards. "But it makes a huge difference in worker productivity, performance, and job satisfaction. Everyone wins." ■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Greener Supply Chain Accelerates Profits and Carbon Footprint Reduction
The farms that supply organic yogurt maker Stonyfield Farm Inc. with the raw materials for its products are free of toxic, persistent pesticides and chemical fertilizers. The largest solar array in New Hampshire helps power Stonyfield Farm's Londonderry production plant, which in 1997 became the first U.S. manufacturing operation to offset 100% of CO2 emissions from its facility energy use. Through reuse and recycling, Stonyfield Farm keeps hundreds of tons of waste from landfills and incinerators each year. Each employee is evaluated on how well he or she supports the company's environmental mission.
Stonyfield Farm

Stonyfield Farm

With organic sourcing, solar energy and recycling as indicators of Stonyfield Farm's commitment to environmental stewardship, it is no surprise that reducing the carbon footprint of its supply chain was a top priority for the 25-year-old, $320 million manufacturer of organic yogurt, ice cream and milk.

"There are no good or bad companies when it comes to climate," says Gary Hirshberg, President and Ce-Yo of Stonyfield Farm. "We're all polluters."

"Even though we were the first manufacturer in America to offset 100% of the CO_2 emissions from our manufacturing plants, these incredible offsets amounted to a rounding error in terms of our total footprint," Hirshberg acknowledges. "We realized that our supply chain – what's coming in and going out of our plant – represents 80% to 90% of our total carbon footprint. So despite the great things we did in our plant, unless we tackled our supply chain's carbon footprint, we were nowhere."

In 2006, Stonyfield began working with Ryder's Supply Chain Solutions division to do exactly that. The effort started small – with automating the freight bill audit and payment process and eliminating the man-hours and reams of paper it consumed. It soon grew to encompass end-to-end transportation management, dedicated contract carriage and warehouse network design.

"In the last year," Hirshberg reports with pride, "my logistics team has reduced our climate footprint for logistics by over 40%. This is money in our pocket. It also makes our supply chain much more efficient."

Together, Ryder and Stonyfield Farm designed a supply chain that lowers costs and improves service while achieving the company's mission to reduce environmental impact. Their combined efforts virtually eliminated paper invoices, cut transportation mileage nearly in half, all while dramatically lowering the CO_2 emitted in the transport of Stonyfield's products.

A Passion for the Environment

America's burgeoning interest in healthy living has spurred substantial growth at Stonyfield Farm over the past few decades. The company, which 25 years ago started producing yogurt with seven cows in a leaky barn, today serves a national appetite for organic yogurt from a single production facility in Londonderry, New Hampshire. Moving a rapidly expanding volume of goods from a single facility in New Hampshire via temperature-controlled trucks to markets that span the country meant some inefficiencies had crept into the company's transportation system. As transportation reach and expenditures grew, managing a manual freight payment process became a tangled, labor-intensive headache.

At the same time, Stonyfield wanted to overhaul its inbound and outbound transportation network to improve its efficiency. This meant rethinking truckload and LTL (less-than-truckload) strategies. It also meant auditing and analyzing lanes and payment, reducing paper use and planning for the future addition of manufacturing and distribution capacity in the western United States.

Any network changes resulting from the efficiency analysis had to reflect these commitments. And all of the decisions stemming from the operational analysis would have to be made in keeping with Stonyfield Farm's culture of environmental and social leadership.

Carrier Management and Freight Payment

The company began by searching for a partner to help with freight audit and payment, carrier management and rate negotiation. "Ryder appealed to us because it was non-asset based," says Boccelli, "We didn't want to be locked into a carrier and have to utilize their assets.

Ryder's transportation management solution, especially the freight bill and audit payment system, helped seal the deal."

Like any shipper, Stonyfield was anxious to get a handle on its freight bills. But even more attractive was the idea that more comprehensive, accurate and timely data on its freight flows and expenditures would allow the manufacturer to better understand its network and apply engineering and modeling to streamline its supply chain. "The scope of services that Ryder provides is much more in-depth," Boccelli says. "We understood that we could use Ryder expertise for other solutions."

At the time the FBAP (freight bill audit and payment) system was rolled out, just two of the company's eight carriers were under contract. So among its first moves was to negotiate deals with the remaining carriers, then set them up with Ryder's software to facilitate electronic data interchange (EDI) transmission of invoices. Within a month, most carriers, including additional firms solicited by a Ryder-managed procurement process, were sending invoices electronically. Ryder's nationwide access to and

At A Glance

Challenge

Untangle a complex inbound and outbound transportation network, where costs were spiraling higher, and reduce the carbon footprint of Stonyfield Farm's supply chain.

Solution

An integrated transportation management solution sensitive to the company's sustainability mission, and building blocks for the company's supply chain growth plans.

Benefits

Improved customer service; a 40% drop in the supply chain carbon footprint, and a 8% reduction in transportation costs. Now with a supply chain ready to grow at an accelerated pace, aggressive expansion into new markets is possible.

relationships with carriers helped secure temperature controlled service, which often is in limited supply. Stonyfield Farm's New England location compounded this scarcity, making it difficult to find capacity and creating a seller's market. (New England is a large inbound freight market, but produces a much smaller volume of total outbound freight. The resulting freight flow imbalance makes the market less attractive to carriers who worry about not being able to fill backhauls out of New England.)

"We helped resolve this potential capacity shortage situation by giving carriers outbound freight from New England across their networks – regional and national – from other Ryder accounts," observes Mark Swenson, Vice President, Business Development at Ryder. "This made it attractive for carriers to come into New England to serve Stonyfield."

On the freight payment side of the transportation equation, prior to using Ryder, Stonyfield manually processed paper invoices from its carriers, amounting to 15 to 20 hours a week of data entry by Stonyfield's staff. Today, all that manual processing is gone. Each night, Stonyfield transmits order-specific information about the day's shipments to Ryder, including carrier name, bill of lading number, pieces, weight, destination and other key items needed to match the invoice to shipment. Carriers now send 96% of invoices electronically to Ryder, where they are electronically coded and matched against shipment data. Stonyfield receives a single electronic invoice weekly from Ryder, which it pays directly through wire transfer. The electronic processing system has eliminated more than 10,000 paper invoices since implementation.

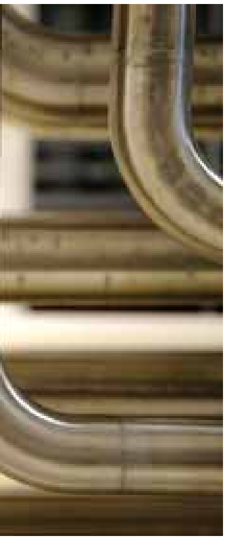
Re-evaluating the Network

Within six months of launching the electronic freight bill processing system, Stonyfield and Ryder had amassed sufficient data to begin strategic analysis of the overall transportation network. The central question in this analysis: how could Stonyfield reduce its mileage, and therefore its carbon footprint, while continuing to reach the many distribution centers and facilities supporting its grocery, natural food, club stores and foodservice customers?

"In the past we had two methods of shipment: full truckload and LTL service," reports Boccelli. "The latter delivered to a pool point, where the LTL carrier picked up five truckloads on Tuesdays for LTL distribution the following week within their network."

"Once we had real data," he continues, "we looked at other transportation methodologies – like multi-stop truckload. Instead of shipping out individual LTL shipments to smaller customers, each incurring additional mileage and generating carbon emissions, we consolidated those shipments into a multi-stop truckload route serving these same customers' distribution centers." That strategy had a dramatic impact on both freight costs and carbon emissions:

- Mileage dropped nearly 40%;
- Cost per shipment declined 8% in 2007 compared to 2006;
- Product weight shipped per truck (thanks to better load planning and shipment consolidation) plus reduced-miles-traveled added up to



significantly lower CO_2 emissions, with absolute emissions reduced by 40%.

"This was a tremendous win for us," Boccelli says.

Shifting to Dedicated Contract Carriage

In addition to re-configuring its for-hire trucking processes, Stonyfield decided to outsource its private truck fleet operations to a Ryder dedicated contract carriage solution. The company utilizes this fleet to do two things – bring raw materials into its manufacturing plant and service customers within a 250-mile radius of the plant. The tractors in the dedicated contract carriage program comply with the specifications identified by the U.S. Environmental Protection Agency (EPA) in its SmartWay™ Transport Partnership program. The SmartWay™ program is an innovative collaboration between EPA and the freight industry to increase energy efficiency while significantly reducing greenhouse gases and air pollution. SmartWay™- approved equipment, such as aerodynamic bumpers and mirrors on a tractor, together with SmartWay™-approved truck engines, can reduce fuel consumption and engine emissions substantially – often in the double digits.

Ryder's dedicated contract carriage solution has led to an estimated 13% transportation cost reduction and 7% decline in carbon footprint for the Stonyfield fleet. To further improve this statistic, Stonyfield is investigating agreements with other local manufacturers to use excess capacity of its contract carriage fleet for their inbound and outbound freight, and is considering use of tandem trailers.

The rich trove of freight data now collected by Stonyfield enabled the company, with Ryder, to identify where it was making the most impact on emissions. Based on the results of the F.L.E.E.T. (Fleet Logistics Energy and Environmental Tracking Performance Model) analysis, Stonyfield works with each customer to adjust inefficient delivery frequencies, minimum order volumes, and other metrics to positively impact supply chain costs and carbon output. Ryder and Stonyfield take the overall carrier modeling results and drill down to the customer level in order to calculate the company's carbon footprint on a per-customer basis.

"Establishing that customer baseline was critical to improving our carbon footprint," says Steve Inamorati, Vice President of Supply Chain and Logistics at Stonyfield, "We validate our reduction in emissions against it."

REDUCING THE ENVIRONMENTAL IMPACT OF PLANT OPERATIONS WAS ONLY ONE PIECE OF THEIR SUPPLY CHAIN FOOTPRINT – ULTIMATELY, STONYFIELD WOULD ADDRESS EVERYTHING GOING IN AND OUT OF THE PLANTS.

> "IT ALL BEGINS WITH PASSION FOR ENVIRONMENT. WHAT IMPACT DOES ANY KIND OF STRATEGIC DECISION HAVE ON THE ENVIRONMENT? EVERYTHING WE DO LEADS BACK TO THAT."
>
> RYAN BOCCELLI - *Director of Logistics, Stonyfield Farm*

"WE REALIZED THAT OUR SUPPLY CHAIN – ALL THE STUFF COMING IN AND GOING OUT OF OUR PLANT – REPRESENTS 80% TO 90% OF OUR TOTAL CARBON FOOTPRINT. SO DESPITE THE GREAT THINGS WE DID IN OUR PLANTS, UNLESS WE TACKLED OUR SUPPLY CHAIN'S CARBON FOOTPRINT, WE WERE NOWHERE."

GARY HIRSHBERG - *CE-Yo, Stonyfield Farm*

A Model for Change

Ryder's work with Stonyfield Farm has not only delivered on both cost saving and carbon footprint reduction goals, but has become a model for others seeking to attain similar environmental impact.

"It doesn't take a rocket scientist to understand that if you reduce your miles driven and you get better mpg, you reduce your carbon footprint," notes Boccelli. "What's key, though, is measuring down to the individual customer level so we can work with each one on delivery frequency, minimum order volumes – the factors that really affect transportation."

"We are trying to get people to understand ways to reduce their carbon footprint, and understand that it doesn't have to be exclusive of saving money," stresses Inamorati. "Those two goals are absolutely aligned."

Ryder also performed a distribution center network analysis to determine where to locate distribution centers to support manufacturing in the western United States. The carbon footprint impact was a key part of the analysis, in addition to mileage and operating cost reductions. Ryder produced a variety of network designs that included:

- Two plants, two distribution center model;
- Two plants, four distribution center model;
- Single plant, multiple distribution center model.

The projected mileage reductions range from 30% to 50%.

"We assessed Stonyfield's current demand across the United States, with the goal of trying to bring distribution closer to demand so as to keep pace with demand growth and improve product fill rate and customer service," explains Swenson. "To prevent the solution from becoming obsolete, we looked at 2012 projected demand across the country."

Stonyfield Farm's CE-Yo sums up the importance of addressing supply chain "green" issues: "In my 25 years in business, logistics was an unavoidable consequence," Hirshberg notes. "At $100+ for a barrel for oil, it's no longer a negligible number."

"A greener supply chain is not just a moral opportunity," he concludes, "It is a huge business opportunity."

When warehouses and DCs explore innovative ways to optimize flow and reduce waste, the benefits can be bottom-line friendly and eco-friendly, too.

Getting LEAN and Going GREEN

INNOVATIONS IN WAREHOUSE OPERATIONS

by William Atkinson

Self-improvement can be a daunting task–both for individuals and for business enterprises. Some warehouses and DCs want to streamline their processes; others may have a mandate to reduce their environmental impact. Fortunately, lean and green solutions abound for every type of facility.

The concept of "lean" was introduced to U.S. manufacturing in the early 1980s. Companies have since expanded it into warehouses and DCs. While some of the strategies are different, the philosophy is generally the same: Study a work process and determine how to do it more efficiently–using the least amount of time, expense, and space, while still maintaining quality.

More recently, companies have begun to embrace "green" initiatives. For some, it is an internal commitment to be better corporate citizens. For others, it is a marketing program designed to build goodwill among an ever-more environmentally conscious public. In either case, companies are finding similar results: Not only are they improving the environment, but they are cutting costs.

Ready to get lean or go green? Here are four warehouse improvement strategies to help you get started.

LESS IS MORE

LEAN WORK PROCESSES

Lean work processes offer many benefits to warehouses and DCs, including reducing the need to purchase and maintain equipment such as racks and conveyors.

"The purpose of a warehouse is to serve as a buffer between customers who order small quantities with frequent deliveries and suppliers who send large quantities with infrequent deliveries," says Quarterman Lee, president of Kansas City, Mo.-based Strategos Inc., a lean consulting firm.

Going lean comprises the following strategies:

Managing Inventory. Matching customer orders to warehouse stock and improving the timing of inbound and outbound shipments can reduce the volume of inventory a facility stores.

"Controlling inventory helps reduce the amount of equipment, racking, and shelving in the facility," Lee says. The ultimate example is cross-docking, where inbound shipments stay in the facility for only a few hours.

"Reducing inventory requires looking upstream to how you plan and schedule, whether you pull or push material, and where your suppliers are located," says H. Lee Hales, president of Marietta, Ga.-based Richard Muther and Associates, a plant, warehouse, office, and service facility management and engineering firm.

Controlling Materials Flow. Another important factor in making warehouses leaner is controlling the flow of materials through the facility.

"Activities are sometimes not performed in the best place, so forklift drivers set products down and pick them up multiple times to get them through a process," says Hales. "This activity requires additional equipment."

Warehouse structure may impose limits on setup choices. For example, keeping a large quantity of product in a small space creates high-density storage, which typically requires multiple touches.

Improving Materials Management Practices. Materials management and sourcing practices, rather than the methods used in the warehouse itself, often determine a facility's lean success.

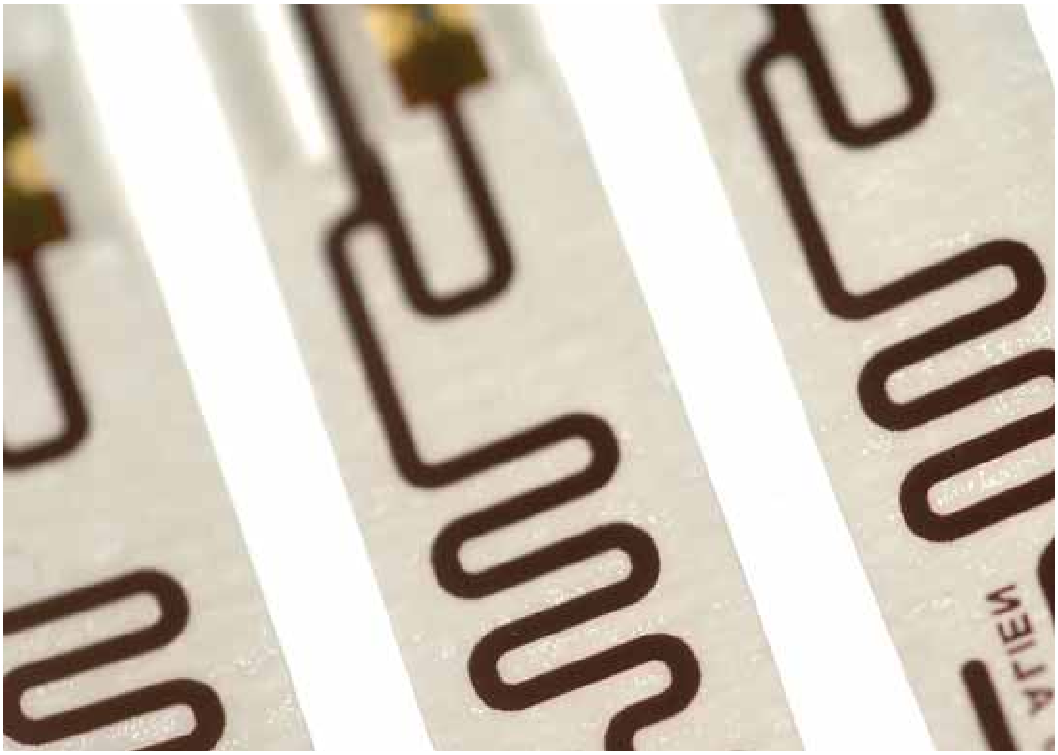
"As often as possible, find out how the customer wants parts delivered," Hales suggests. "Then, work with suppliers to determine how to best package and label the parts, and how often and in what quantity they should deliver them." When the warehouse receives a shipment that is properly packaged and labeled, it can move the materials directly to where they are needed.

Going lean doesn't require rebuilding the warehouse or DC from the ground up. Implementing any of these strategies results in a leaner warehouse.

Getting Lean Gets Official

While "lean" is a term usually associated with manufacturing operations—a process whereby waste is eliminated—it is beginning to make its way into the supply chain. So much so, in fact, that **Associated Warehouses Inc. (AWI), a marketing organization that represents North American 3PLs, is in the process of developing a lean designation program for facilities.** The designation would establish a rating scale to rank facilities' lean profiles.

"Two AWI locations will participate in a pilot program to refine the process we will use to implement and create an AWI-Lean designation," says Mark Richards, AWI vice president. The company intends to create a one- to five-star rating that evaluates lean processes within a facility. *– Lisa Harrington*



TAG...YOU'RE IT!

RFID TRACKING

Sturdy and versatile, pallets are a permanent fixture of warehouses and DCs. Now there's another reason for facilities to value their pallets: They can help track inventory. The more efficient workflow that results from this capability is a hallmark of lean logistics.

Diakinisis, an Athens, Greece-based 3PL, utilizes Radio Frequency Identification (RFID) tags and interrogators to track about 1,300 pallets each day at its distribution center. The technology provides 100-percent traceability from the time pallets arrive at the DC until they leave.

In November 2007, Business Effectiveness, an Athens-based RFID systems integrator, installed equipment supplied by Alien Technology, a Morgan Hill, Calif.-based provider of RFID products and services, at Diakinisis' facility.

Diakinisis uses the RFID technology for one of its clients, a global food and beverage company. The project represents one of Europe's first full-scale RFID installations in a fast-moving consumer goods DC environment.

"Diakinisis has devoted an entire DC specifically to this customer," states Scot Stelter, director of product marketing for Alien.

Diakinisis chose to implement cutting-edge RFID technology as a way to differentiate itself from competitors. The RFID system saves labor and time because workers no longer manually scan bar codes to identify pallets. The technology also provides the food company with greater and more accurate visibility of goods in transit.

HOW IT WORKS

When a pallet enters Diakinisis' 1.2-million-square-foot DC, a worker scans the bar-code label that was applied by the food company. This label is then associated with an Alien Squiggle tag affixed to the pallet. Next, a forklift outfitted with an RFID interrogator and computer picks up the pallet, capturing the tag's ID. The forklift's computer communicates with the warehouse management system (WMS), which directs the forklift operator where to move the pallet.

To ensure pallets are delivered to the correct place, each location is identified with either an

Alien M tag glued to the concrete floor, or an Alien Squiggle tag applied to the rack.

"Most warehouses use the Squiggle tag," explains Stelter. "They use the M tag for difficult-to-tag items because it has a larger surface area."

The forklift reader captures the floor or rack tag data, and the computer then confirms the location and communicates back to the WMS that the pallet has been delivered.

In addition to improving speed and efficiency, the technology ensures accuracy. If the forklift operator attempts to place the pallet in the wrong location, the computer screen freezes, preventing the operator from proceeding to the next task.

Diakinisis has also affixed Alien RFID tags to the trucks that pick up pallets at the loading docks and deliver them either to other DCs or directly to stores. An RFID portal designed for exposure to the elements reads the RFID tag number of every pallet as it is loaded onto a truck. This information is cross-referenced with the data in the WMS. In the event of a discrepancy, a light stack displays an alert and a siren sounds.

As a result of using RFID tracking, Diakinisis has achieved 99-percent pallet traceability; a 25-percent improvement in pallet putaway speed; a 40-percent improvement in pallet pickup speed; a 20-percent reduction in overtime; and an 80-percent reduction in shipping errors.

Diakinisis is working to reduce shipping errors even further, but "human involvement creates the potential for error," Stelter explains. In this situation, the pallets do not come into the DC pre-tagged. When they arrive, workers scan the bar codes and apply the RFID tags to the pallets.

"There is a chance that the wrong tag will be applied," Stelter says. "It is also possible for damage to occur to tags along the way, in which case employees might revert to manual or bar-code identification."

To further improve efficiency, Diakinisis recently removed a step. In the past, one forklift placed pallets in a spot where another lifted them to the racks. Now, forklifts take incoming pallets directly from the trucks to the racks.

It may be as simple as knowing where inventory is, but RFID is increasing efficiency, taking warehouses and distribution centers a long way toward becoming lean.

TANKING UP

HYDROGEN FUEL CELL FORKLIFTS

Forklifts are the key to keeping warehouses moving. But what keeps the lift trucks moving? In a conventional electric forklift, the energy used to drive the truck is stored as electricity in a lead-acid battery. In a fuel cell-powered forklift, energy is stored as hydrogen gas and converted into electricity as needed.

Using fuel cells in high-throughput warehouse applications helps improve warehouse productivity, lower operating costs, and reduce waste products. Hydrogen fuel cells offer greater productivity because they can be rapidly refueled – in several minutes versus several hours for electric forklifts – eliminating the need to change batteries.

In a three-shift operation, three batteries plus a charger may be needed per forklift, as well as room to store and maintain them. Warehouses can reduce cost and labor by eliminating the need to purchase batteries and chargers. And because hydrogen is the most plentiful element in the universe, availability isn't a problem.

Another advantage to hydrogen fuel-powered forklifts is that the voltage delivered by a fuel cell remains constant. Unlike battery-powered forklifts, which slowly decrease in power as the battery weakens, fuel cell-powered vehicles do not experience performance degradation until the fuel runs out.

LAB WORK

In early 2007, Greene, N.Y.-based forklift manufacturer Raymond Corporation was awarded a two-year $750,000 contract from the New York State Energy Research and Development Authority and New York Power Authority to research hydrogen fuel cell applications in electric forklifts.

Since then, Raymond has transformed its manufacturing facility into a working lab where the company operates and studies hydrogen fuel cell-powered trucks. As part of the process, Raymond has developed the infrastructure for bringing fast-

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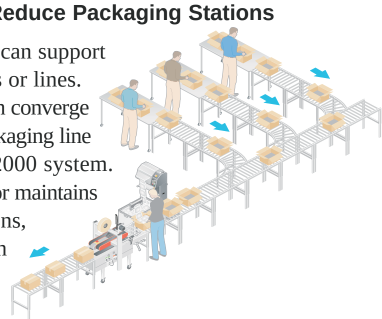

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GET A MOVE ON: Refueling hydrogen-fueled lift trucks inside the Raymond facility saves time.

fill hydrogen refueling systems, which are traditionally installed outdoors, inside the facility.

The goal of the research program is to study how hydrogen fuel performs in electric forklifts and demonstrate the safety of a hydrogen-fueled forklift environment.

The research program involves three steps. First, establish a working indoor refueling system that meets all required code and standard

requirements. Next, operate four hydrogen fuel cell-powered lift trucks at the factory, running each truck 24 months. Finally, monitor the performance and hydrogen consumption of the trucks as they do real work in the facility.

Raymond has found that the fuel cell system is no more complicated than traditional electric forklifts. Both are computer-controlled and have monitoring equipment.

"For this technology to succeed, we need reliable fuel cell systems," explains Steve Medwin, Raymond's manager of advanced research. "We don't want fuel cell systems that will adversely impact the reliability of our trucks. If the fuel cell system goes down, it has to be pulled out and replaced with a battery. We are working to address these issues."

THE RESULTS ARE IN

By the end of 2007, Raymond had compiled some preliminary findings on performance, refueling time, and forklift design. For one, hydrogen fuel cell trucks maintain performance comparable to battery-powered trucks. For example, the braking distance and maximum travel and lift speeds are equivalent.

Refueling time is significantly reduced, however. It takes only two minutes to fill the hydrogen fuel-powered trucks, compared to the 20 minutes it takes to remove and replace a battery

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from the same truck model. In addition, drivers are pleased with the consistent performance of the fuel cell-powered trucks.

"We have made a lot of progress," says Medwin. "We have trucks running in the factory, which allows us to identify and troubleshoot issues that arise with the different units."

Raymond is continuing to research other areas, including hydrogen consumption and refueling frequency; operation of the hydrogen infrastructure; reliability, maintenance, and repairability of the fuel cell systems; and how the voltage delivered compares with the specifications for all the electrical components and options on a truck.

Efficient, plentiful, rechargeable, and clean, hydrogen fuel cells provide a jolt of green.

In addition to using eco-friendly fluids, Videojet's "green ink" is recyclable.

MAKING A MARK

ENVIRONMENTALLY FRIENDLY LABELING INKS

Warehouses with limited green budgets might consider using recycled and environmentally friendly supplies and packaging. One affordable and immediately rewarding option is replacing printing label ink with a green alternative.

One vendor offering "green ink" is Wood Dale, Ill.-based Videojet Technologies. Its variable data printing inks are made from environmentally friendly or benign fluids. Products include drop-on-demand ink jets, thermal-transfer overprinting, and laser marking systems.

"We have been offering green and sustainable inks for primary and secondary packaging for more than 10 years," reports Scott Prochaska, Videojet's product manager of supplies. The inks, many of which are water-based, can be printed on kraft corrugate, the material used for most secondary packaging.

Variable data inks are comprised of three components: the colorant (what you see), the binder (which adheres the colorant to the surface), and the solvent (the fluid in which the colorant and binder are suspended).

Warehouse staff can also preserve the ink for recycling. The print heads of the larger-character printers used in secondary packaging are purged periodically for cleaning, but when an inefficient printing technology is used, ink can be lost during purging. Frequency of purging depends on the environment, but under some conditions, such as printing on high-fiber corrugate, it may be necessary every few hours.

By using–and recycling–green printing inks, warehouses can reduce their impact on the environment without a lot of effort or expense. ■


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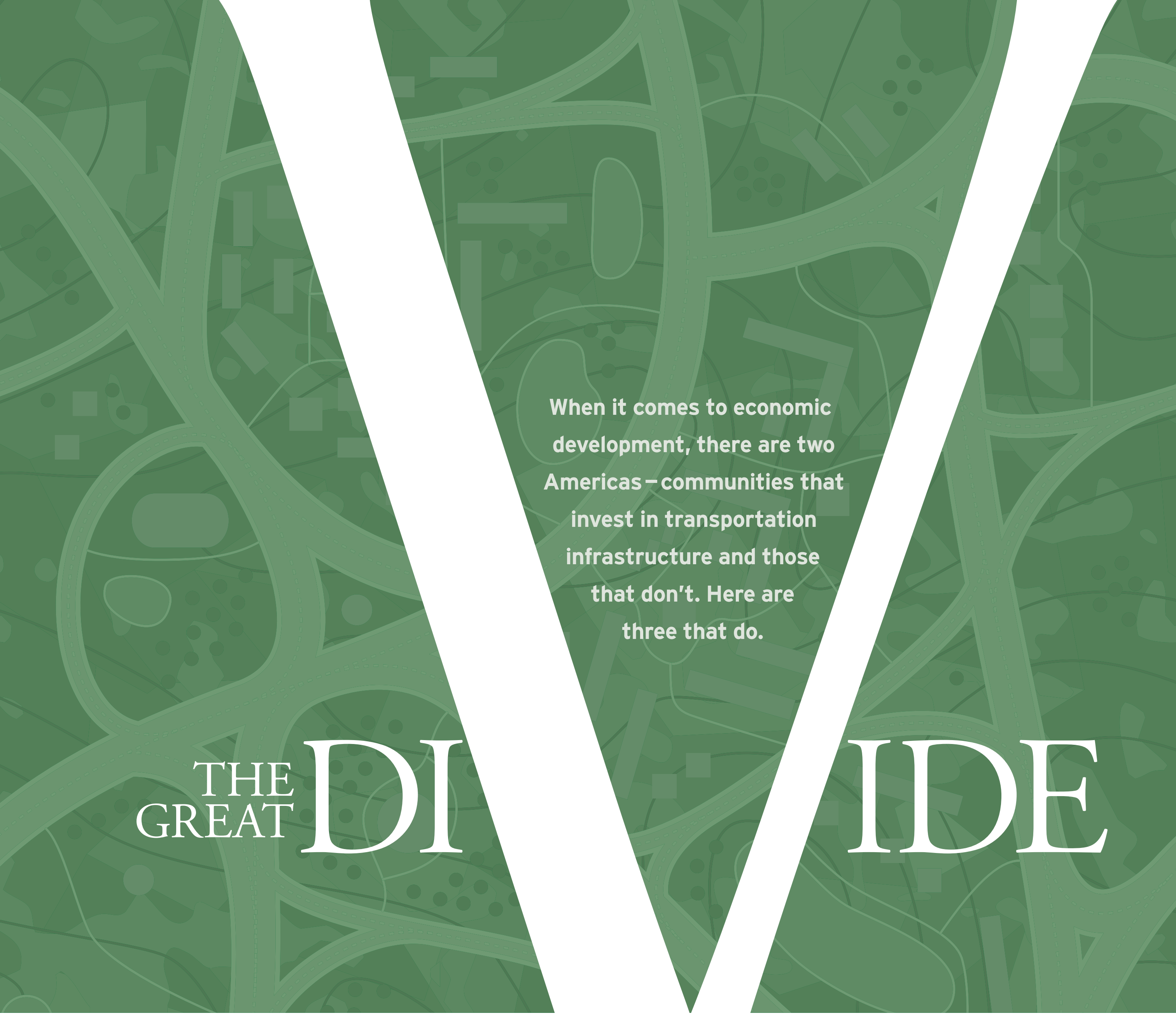


THE GREAT DIVIDE

When it comes to economic development, there are two Americas—communities that invest in transportation infrastructure and those that don't. Here are three that do.

Today, site selection is more about the what and why than the where. Those selecting sites need a vision of not only what their businesses demand today, but also what they will require in the future. That means developing a full and clear understanding of labor requirements, optimal transportation modes, utility needs, and the potential benefits of free trade zones.

It also means sorting through intense competition among communities trying to attract you.

In the past, many economic development initiatives focused on incenting manufacturing. While that is still the case, forward-thinking locales are investing in transportation infrastructure to create jobs and grow the local economy through tax revenues. Part of that investment also includes attracting carriers, warehouses, third-party logistics providers, and technology vendors to flesh out their transportation/logistics infrastructure.

Here's a look at three areas that are leading the way.

EL PASO/JUAREZ

OFFSHORE SAVINGS IN A NEARSHORE ENVIRONMENT

by Bob Cook and Luis Ruiz

Increased global competition is driving many U.S.-based companies to pursue offshore locations looking for low-cost labor. What they are finding, however, is that the logistical advantages of operating on the U.S./Mexico border often outweigh the labor cost differential of offshore locations.

For manufacturers, the advantages of locating on the Mexican side of the border can include intellectual property protection, enhanced communications, tighter quality control, skilled labor, and the ability to more efficiently implement engineering changes—especially in locations such as the El Paso/Juarez "Borderplex."

With more than 260,000 people employed in manufacturing, the El Paso/Juarez region ranks as one of the top five manufacturing centers in North America. Centrally located on the U.S./Mexico border, the Borderplex (El Paso, Texas; Cd. Juarez, Chihuahua, Mexico; and two southern New Mexico counties) is one of the largest international metropolitan areas in the world.

More than $50 billion of goods and components cross through Borderplex ports of entry each year, largely driven by Mexico's maquila (manufacturing) sector, and is solidified by the robust infrastructure for cross-border logistics.

Rail. Every day about 450 rail cars make the cross-border trek, facilitated through a partnership between Mexican rail company Ferromex and U.S. rail carriers Union Pacific (UP) and Burlington Northern Santa Fe (BNSF). There are a number of rail-served sites in the city of Juarez and El Paso; both UP and BNSF serve many of the larger tracts of land through dual trackage rights.

Air. More than 140 non-stop daily flights serve the El Paso International Airport (EPIA), with six carriers connecting El Paso to 18 destinations. An additional 20 non-stop daily flights originate from Juarez, reaching 14 cities in Mexico.

EPIA has invested more than $60 million to create the largest and most modern air cargo facility on the U.S./Mexico border, providing more than 300,000 square feet of space for air cargo. EPIA has reserved enough land to double the size of air cargo facilities as the need arises.

Also servicing the metro area is New Mexico's Santa Teresa Air Cargo facility, which offers proximity to highway and rail, as well as New Mexico's only port of entry into Mexico.

EPIA is also launching a 3,000-acre, mixed-use development and plans to create areas for light to heavy industrial customers.

Truck Transportation. The region is well-connected to the North American interstate highway system, allowing the efficient distribution of finished product by more than 70 transportation and distribution companies providing service to all directions on the continent.

Emerging Industries. Many different industry segments are seeking the logistical

El Paso/Juarez is banking on an anticipated boost in global trade resulting from Mexico's aggressive infrastructure investments.

advantages that Mexico provides. 2007 was a particularly noteworthy year for the automotive industry, reaching the long-sought two million light-vehicle unit mark in production—largely driven by Nissan, General Motors, Ford, and Volkswagen. The Borderplex alone employs more than 100,000 workers in more than 90 automotive supplier plants.

The aerospace industry is emerging to a level of prominence in Mexico; more than 150 plants currently employ 17,000 people nationwide. The state of Chihuahua is home to aerospace-related operations for companies such as Labinal, Honeywell, Cessna, Zodiac, and Hawker Beechcraft.

__Bob Cook__ is president of the El Paso Regional Economic Development Corporation (REDCo). __Luis Ruiz__, REDCo marketing and research associate, contributed to the article.

INDIANA

THE HOOSIER STATE GOES GLOBAL

by Daniel Przybyla

Indiana sits on the doorstep of a major port and the largest rail hub in North America: Chicago. The state has an enviable geographical position endowed with water, rail, road, and air access. It offers potential for immense regional economic benefits, job creation, an expanded tax base, and enhanced infrastructure systems.

The Hoosier state has joined the global trade model in which components are brought from all over the world and assembled near their destination of consumption. It's part of a global economic shift in which production occurs overseas and goods arrive at U.S. ports and intermodal facilities.

Indiana plays a critical role in freight movement because more than one-third of all rail traffic in the country moves through Chicago, where eastern and western railroads converge. Four Class I railroads running through northwest Indiana into Chicago have brought more goods through the Hoosier state in recent years.

The volume of rail freight moving through Indiana was 113 million tons in 1998, but is predicted to jump to 148 million tons in 2010 and 169 million tons by 2020, according to the Federal Highway Administration. Container imports are expected to double during that same period.

To maximize transportation efficiencies, many intermodal facilities have been built in Chicago, from which 75 percent of the U.S. population is accessible within a day's drive.

The volume of train traffic through Chicago, however, creates bottlenecks. It takes two to three days to move goods from Los Angeles to Chicago by rail, but takes the same amount of time for the rail traffic to get through Chicago. The city lacks space for more rail intermodal development so intermodal sites have been constructed in suburbs west of Chicago to receive rail freight coming from the West Coast.

It's an economic development scenario that many

Indiana is trying to wean shippers from their dependence on Chicago by offering efficient and cost-effective transportation alternatives.

Hoosier business leaders want to duplicate in Indiana.

"Indiana's location puts it in the pathway of progress," says Leigh Morris, chairman of the Northwest Indiana Regional Development Authority.

Local and state leaders have been stepping up efforts to promote Indiana, particularly northwest Indiana, as a center for transportation, distribution, and logistics. Currently, more than 600 transportation, distribution, and logistics companies employ 90,000 Hoosiers.

"Intermodal facilities help connect Indiana's transportation assets and create more opportunities for businesses to move their goods to markets around the globe," says Mitch Frazier, director of media relations, Indiana Economic Development Corporation.

It seems certain that Indiana will open more intermodal facilities. With the Los Angeles/Long Beach port at capacity, shipments will reroute to the East Coast. That means goods move across the country from east to west.

"East Coast container volume growth is a positive development for inland logistics centers in Indiana," says transportation expert Libby Ogard.

"Northwest Indiana is becoming part of a global crossroads," notes Michael Gallis, a national urban strategist. "Communities are focusing on securing a high-value future and quality of life. An intermodal facility could bring a lot of jobs in a way that's compatible with the environment."

***Daniel Przybyla** follows business and economic development trends in northern Indiana.*

KANSAS CITY

INLAND SOLUTION TO WEST COAST PORT CONGESTION

by Mark C. Long, SIOR, CCIM

Recent census reports show more than $200 billion in goods and services entering the United States through clogged and congested ports.

The increased demand for imports over the past 50 years has caused a traffic jam in coastal ports and raised questions as to how we will continue to maneuver products throughout the country. The United States' top-five trading partners are Asian countries that account for 25 million containers or TEUs (20-foot equivalent units) of the total 27.5 million TEUs imported or exported in 2006.

Importers are looking inland to find alternatives to the West Coast's busy ports. Located in the heart of the Midwest, Kansas City, Mo., provides a logistically viable and financially feasible option.

Opened in March 2008, the CenterPoint-KCS Intermodal Center in Kansas City delivers a 1,340-acre intermodal center and logistics park with direct connection to the Port of Lazaro Cardenas in Mexico via the Kansas City Southern Railway (KCS). The park features a 370-acre intermodal facility operated by KCS and a 970-acre industrial park, built to accommodate as much as five million square feet of warehouse and distribution center space.

The intermodal center is

connected to world markets via the Lazaro Cardenas Port, which connects Asian ports to Kansas City by KCS's north-south rail line through Mexico. Lazaro Cardenas is a deep-water port capable of handling the world's largest shipping vessels. In addition to offering an alternative port that bypasses the overly congested ports in Los Angeles and other cities along the West Coast, the intermodal center's location within a Foreign Trade Zone provides companies with tax advantages and financial savings.

KCS has 11,340 feet of main line track with the capacity to be one of the largest intermodal freight gateways in the Midwest. Mazda North America currently operates an automotive distribution facility on the property and moves 60,000 automobiles through KCS's International Freight Gateway each year. The immediate proximity to the logistics park allows shippers to store goods without paying high drayage fees.

Kansas City's CenterPoint-KCS Intermodal Center features an intermodal facility and logistics park with direct connection to Mexico via Kansas City Southern Railway.

Ranked second and third respectively in national rail and trucking, Kansas City is ideally positioned to become a significant distribution hub for international trade. At the geographic center of the country, the CenterPoint-KCS Intermodal Center provides single-day truck access to nearly every major Midwest city including Denver, Minneapolis, Chicago, Indianapolis, Little Rock, and Dallas.

Kansas City also boasts more freeway-lane miles per capita than any other U.S. city. The park is strategically located adjacent to U.S. Highway 71 with close proximity to Interstates 29, 35, 70, 435, 470 and 635, and U.S. Highway 69.

Importers no longer have to worry about West Coast congestion. Outstanding access to international markets via Lazaro Cardenas, coupled with time and financial savings provided by the intermodal center and first-rate distribution center space offered by the industrial park, the CenterPoint-KCS Intermodal Center is quickly becoming the solution to congested coastal ports.

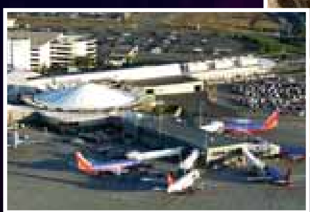
__Mark C. Long__, SIOR, CCIM serves as senior vice president and director of sales and leasing for Zimmer Real Estate Services, L.C.

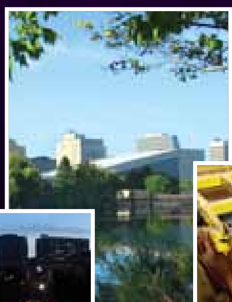
Looking for easy access to major U.S. markets? A gateway for international trade free of traffic snarls? Inexpensive utilities and real estate with plenty of room to expand logistics or manufacturing operations? Spokane is just what you're looking for.

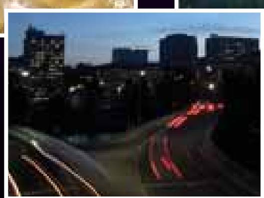
Spokane

Hub of the Inland Northwest

SPECIAL ADVERTISING SUPPLEMENT







“Some people call Spokane a ‘hidden gem’ because it’s inland,” says Robin Toth, director of business development at the public-private partnership Greater Spokane Inc. But **Spokane, Wash., isn’t all that hidden; these days it’s on a lot of site selection radar screens, and with good reason.** Look at the role Spokane plays as a logistics hub for the Inland Northwest, and it’s clear that this gem is a sparkler.

Located 280 miles from Seattle, 18 miles from the Idaho border, and just 110 miles from Canada, Spokane serves as a hub for business, industry, transportation, medicine, and culture for a regional population of more than 1.4 million and growing. Between 2001 and 2007, the population of Spokane County alone grew from 422,400 to 451,200.

The attraction for site selectors is obvious. In 2006, *Expansion Management* magazine named Spokane one of the Top Logistics Metros in the Western United States. That’s just one honor this region has racked up recently. That same year, the

Small Business Entrepreneurship Council placed Spokane fifth on its list of the Top 10 Friendliest Policy Environments. In 2007, *Inc.* magazine ranked it #22 on its list of Best Midsize Cities for Doing Business. And this year, *Forbes* placed Spokane ninth on its list of 200 Best Places for Business and Careers.

Spokane has been an economic hub since the 1880s, when miners discovered gold, silver, lead, and zinc in northern Idaho and northeastern Washington. The city also became a center for agriculture, the timber industry, and railroads. The Northern Pacific Railroad reached the area in 1881, establishing direct ties to the rest of the continent.

At one time, six railroads used Spokane as their Inland Pacific Northwest hub. "They had roundhouses and maintenance depots right in Spokane City," says Bill Holcomb, an associate instructor in the management department of Spokane Falls Community College.

Since those early days, Spokane's reach has extended a long way, creating a major advantage for companies sourcing or distributing goods. "A 20-hour or 16-hour drive from Spokane spans all the way up to Edmonton, Alberta, Canada, and all the way down to Salt Lake City," Toth says. A trip of similar length speeds freight to Denver or to the ports of Oakland and San Francisco. Portland is less than six hours away, and Seattle less than five.

Inland Empire Distribution Systems Inc. (IEDS), a third-party logistics firm headquartered in Spokane, serves several Canadian manufacturers and forest product firms. "Companies also locate in Spokane for distribution into British Columbia and Alberta," says Jim Ewers, CEO of IEDS. "And Canadian firms use Spokane as their distribution point into the western United States."

Extraction from Alberta's rich oil sands has spurred an economic bonanza. Because the province maintains close economic and cultural ties with the state of Washington, the oil boom there presents many opportunities for manufacturers and service providers in Spokane.

COAST TO COAST

More than 100,000 vehicles traverse the Spokane region each day on Interstate 90, the northernmost east-to-west, coast-to-coast interstate in the country. U.S. highways 195, 395, and 2 also converge on the city.

Taking advantage of those routes, more than 100 major motor freight lines and contract carriers serve the Spokane region. Two carriers headquartered in Spokane, TWT Motor and System MotorFreight, provide full truckload transportation throughout the continental United States. ABF, Yellow, Roadway, and USF Reddaway serve the lower 48 states from Spokane with less-than-truckload service. Puget Sound Transfer, Priority Transfer, Oak Harbor Freight Lines, and Peninsula Freight Lines provide regional service.

Two Class I railroads, Burlington Northern Santa Fe and Union Pacific/Southern Pacific, serve the Spokane region, shipping nationally from the switching yard in Spokane Valley. For both railroads, the region is on direct lines that run from Seattle to Chicago, providing easy access from Spokane to the interior of the United States and the Pacific Rim. "Spokane also has a direct connection north and south on the Canadian Pacific Railway," Toth says.

Spokane International Airport (SIA), the second-largest airport in Washington, is served by 10 airlines and three cargo carriers, DHL Express, UPS (including UPS Worldwide), and FedEx.

"SIA has increased its cargo and passenger traffic dramatically over the last decade," Toth says. In 2006, 3.2 million passengers and 57,000 U.S. air cargo tons passed through its facilities. The airport recently completed more than $70 million in upgrades and construction projects.

In 2005, the average landing fee at SIA was $900, compared to $1,710 in Portland and $2,160 in Seattle, according to a March 2007 presentation by the Inland Northwest Partners.

Along with this well-developed transportation infrastructure, Spokane boasts an advantage that few large cities can claim: free-flowing traffic. Drivers trying to avoid rush hour congestion would be hard-pressed to find any on local highways. "We don't have a rush hour; we have a rush minute," Toth says. "Shippers moving freight from one point to another are thrilled with the lack of traffic."

Business leaders considering locating facilities in Spokane also are pleasantly surprised by the low cost of electric power. With abundant hydropower, area utilities supply energy for commercial, industrial, and residential use at rates well below the national average. In addition, Spokane County boasts 500 route miles of commercial fiber-optic infrastructure, and downtown the city

In Good Company

Sizable companies with locations in the Spokane region include:

- Agilent
- BluRay Technologies
- Cisco
- F5 Networks
- General Dynamics
- Goodrich Corporation
- Honeywell
- Itron
- Kaiser Aluminum
- Telect
- Triumph Composite Systems

FLIGHT CHECK. Ten airlines and three cargo carriers service Spokane International Airport.

offers 100 blocks of free, high-speed wireless Internet access.

Spokane's position at the center of the Inland Northwest could enhance logistics and distribution operations in the future, as Washington and Idaho solidify plans for a proposed Inland Pacific Hub. This initiative seeks to develop a multi-modal transportation gateway for international trade.

"The Inland Pacific region, with Spokane and Kootenai counties as the hub, currently has much of the basic infrastructure needed to support an inland port facility," reported the Washington State Transportation Commission in March 2007.

"The Inland Pacific Hub plan was designed to promote this area's use for transportation and logistics," says Glenn Miles, transportation manager at the Spokane Regional Transportation Council (SRTC). SRTC is one of about 20 state and local government and economic development organizations in eastern Washington and western Idaho collaborating on this initiative.

The group recently engaged a consulting firm to take stock of the area's transportation assets and recommend the connections needed to create a more complete logistics hub. "We're identifying the correct mix of facilities and locations," Miles says.

For example, Spokane County recently acquired the Geiger Rail Spur, a facility with access to the BNSF line located on the West Plains, close to Spokane International Airport. "We are determining the type of improvements needed to create an intermodal facility there, in order to move freight both to and from the rail service," Miles explains.

The Inland Pacific Hub project has received about $238,000 in federal funds and another $250,000 from the state of Washington. "And we anticipate another $250,000 through the state of Idaho," Miles says.

Project leaders hope to complete the study within 18 months. "Then we will look at the assets and what it will take to make the area work as a seamless freight transportation system," Miles says.

AFFORDABLE REAL ESTATE

As community leaders work to improve the links among Spokane's excellent transportation facilities, companies that plan to take advantage of those facilities will find a great deal to please them when they shop for real estate. Prices are attractive – about $12 per square foot for downtown property and $4 per square foot in industrial areas.

Businesses seeking to locate in the area can use the Spokane Regional Site Selector, an online geographic information system. With this tool, users can search for vacant building space or developable land based on criteria such as size, location, and usage type. Once users have selected a property to investigate, the tool generates reports on that location with demographics, consumer expenditures, business and workforce data, and employment wages. To help companies identify potential competitors or business partners, the tool also generates a report showing the number and types of businesses of various types near that property.

Beyond the properties already available, businesses will soon gain more options as the city of Spokane and Spokane County develop the West Plains area near the airport.

"One strategic project is to get that area ready so visitors can see Spokane's assets and know they can get to work quickly," Toth says.

The area already has a well-developed road infrastructure. Now, local leaders

are pushing to extend utilities, including telecommunications, and conduct the necessary environmental impact studies. "We're working hard to quickly obtain the permits necessary to make the land shovel-ready," she says.

If a company uses some of the West Plains land – or land in other parts of Spokane – to build a warehouse, grain elevator, or distribution center, it can look forward to applying a sales tax remittance to the construction of a 200,000-square-foot or larger warehouse.

Greater Spokane also offers a variety of other business incentives, including:

- Sales and use tax exemptions for manufacturing machinery and equipment.
- Incentives for manufacturers in the aerospace industry.
- Tax credits for businesses that provide international services.
- Incentives for businesses involved in high-tech, biotechnology, renewable energy, or biofuels.

In addition, qualified businesses that locate in Community Empowerment Zones are eligible for special tax incentives.

Economic development initiatives in Greater Spokane concentrate on six industries: manufacturing, aerospace, health sciences, information technology and telecommunications, clean technology, and digital media.

Aerospace in particular is a major focus of manufacturing in the area. But even among the approximately 60 companies that provide components to aerospace manufacturers, there's tremendous diversity. "According to their product portfolios, they also provide parts to the medical, construction, and health care industries," Toth says.

DEEP TALENT POOL

Businesses in Spokane draw upon a diverse and well-educated workforce. More than 90 percent of working age residents in the region are high school graduates, more than 60 percent have attended college, and nearly 60 percent hold a bachelor's degree. Spokane County boasts a labor pool of nearly 228,000 residents, with more than one-third in the 18 to 65 age range.

Spokane and the surrounding region are home to 18 universities and colleges, including Washington State University and Eastern Washington University.

Rapid economic growth in the Spokane area in recent years has expanded the workforce by drawing many people from other parts of the county. "Unemployment was low, but people moving into the area provided an excellent source of talented personnel to help grow our business," Ewers says.

For companies seeking logistics and supply chain talent, Spokane enriched

Great Mix for Logistics

Jim Ewers has operated companies in Los Angeles and Seattle, but since 1983 his family's business, Inland Empire Distribution System (IEDS), has been thriving in Spokane. Jim's father, Bert Ewers, founded the third-party logistics firm with 40,000 square feet of warehouse space in the Spokane Industrial Park. Today, IEDS operates 850,000 square feet divided between Spokane and Pasco, about 135 miles to the southwest.

The mix of businesses in Spokane has been good for IEDS, says Jim Ewers, the company's president and CEO. "Spokane offers a good array of manufacturing and the overall environment of distribution networks that is typical in any large city, just on a smaller scale."

Along with its warehousing services, IEDS operates a fleet of 20 tractors and trailers providing truckload and less-than-truckload services in and around Spokane and Pasco. The company focuses on four markets: consumer groceries, industrial products, forest products, and chemical products.

In Ewers' view, Spokane is the region's natural logistics center. "In the Inland Northwest, Spokane is the big city, so all the distribution for the Inland Northwest happens from there."

The city's proximity to Canada also offers advantages. "We do business with several Canadian firms handling everything from forest products to industrial products," Ewers says. "We provide specialized packaging services and distribution into the United States for one client across the border, a mining company called Teck Cominco."

ON THE ROAD AGAIN. IEDS operates a fleet of 20 tractors and trailers providing truckload and less-than-truckload services in and around Spokane.

Spokane's location near Canada, and not far from the West Coast ports, also allows IEDS to participate in the import-export business. "We're a U.S. Customs exam site for containers coming through. We're also the only foreign trade zone in the Inland Northwest," Ewers adds.

At its facility in nearby Pasco, IEDS takes advantage of the concentration of firms that distribute crop protection products. "Our campus in Pasco is specifically designed to safely handle agricultural chemicals, some of which are hazardous," Ewers says. "That location serves the entire Pacific Northwest – Washington, Oregon, Idaho, and Montana."

In addition to finding a ripe market in Greater Spokane, IEDS has had an easy time attracting employees from other regions, thanks to the area's excellent quality of life. "It is a great part of the country for recruiting people because of the outdoor activities it offers, including skiing and hunting," Ewers says. "For outdoor enthusiasts, these are some of the best areas of the country."

For IEDS, Spokane's appeal is undeniable.

Economic development initiatives in Greater Spokane concentrate on six industries: manufacturing, aerospace, health sciences, information technology, clean technology, and digital media.

the talent pool in the fall of 2007, when Spokane Falls Community College (SFCC) launched a degree program and certificate program in transportation and logistics.

Bill Holcomb, who has run several businesses of his own in Spokane, spent nine months talking with executives in the area to determine the need for such a course. The response was overwhelmingly positive. So the school's management department developed a curriculum to serve undergraduates as well as workers who wanted to develop their transportation, logistics, and supply chain management skills.

Undergraduates take six three-credit classes to earn an AAS degree in management with a transportation and logistics major. A student who takes just the core of 18 credits earns a certificate in transportation and logistics. The core courses are: Customer Service; Transportation Systems; Principles of Purchasing; Inventory Management; Logistics and Supply Chain Management; and Warehouse and Distribution Management.

While researching what sort of content to include, Holcomb learned that SFCC was embarking on an unusual enterprise. "A lot of schools I talked to said this program is not offered at many two-year colleges," he says.

Incumbent employees who pursue the logistics and transportation certificate find it easy to accommodate the work to their schedules. Based on suggestions from an advisory committee of industry leaders, SFCC created a hybrid format for the six core courses. Students attend the first and last sessions on campus, but the rest of the instruction takes place online.

Another local two-year school, Spokane Community College, offers a professional truck driver training program in collaboration with transportation companies Trans-Systems Inc. and Driver Training & Solutions.

WASHINGTON'S SUNNY SIDE

Along with all its business advantages, Spokane offers a quality of life that makes the area easy to love. It has a four-season climate but suffers from neither the cold and snow that make life difficult in much of the north or the extreme heat found farther south.

If your vision of Washington is a gray afternoon in Seattle, prepare for a much different scene in Spokane. "The city delivers 260 days of sunshine per year," Toth promises. And residents don't have to go far to enjoy that good weather, with 76 lakes, four rivers, five major ski areas, and 32 golf courses all located within a 50-mile radius.

Employees relocating from other regions of the country also get a pleasant surprise when they check the real estate ads: The median home price is $194,000. And unlike regions where the quest for reasonable prices sends buyers into outer exurbia, people who settle in Spokane don't have to spend half their lives on the road. "The commute to work averages 22 minutes," Toth says.

Easy living, abundant transportation, access to numerous markets, and plenty of room to grow – for any company investigating sites for a new manufacturing or distribution facility, this not-so-hidden gem is worth a serious look. ■

TMS
BUYERS GUIDE 2008

by Joseph O'Reilly

There are countless reasons why transportation management is such a hot topic these days. Ballooning fuel costs, lengthening supply lines, fluctuating capacity, and demanding customer requirements are raising eyebrows and competitive stakes alike. But as demand feeds supply, a variety of transportation management solutions (TMS) cater to unique shipper and carrier needs.

From global trade management solutions to domestic route optimization software, on-demand Web-hosted applications to traditional licensing installations, over the road, on the rail, containerized or parcel, TMS vendors and service providers are expanding their offerings to pinpoint specific end-user tastes. *Inbound Logistics'* TMS Buyers Guide serves up an assorted menu of market players and solutions that can help satisfy your enterprise's appetite for dynamic transportation management and performance.

TMS BUYERS GUIDE

	VENDOR	PRODUCT	DESCRIPTION
L	**Appian Logistics Software** Oklahoma City, Okla. www.appianlogistics.com	**Direct Route**	Optimizes routes using various automated tools. The program allows users to enter and update data using a simple Excel environment for a straightforward interface as well as integrate mapping, mileage, and driving directions from sources such as GDT, NAVTEQ, Prophesy, MapPoint, and PC*Miler.
H	**Banyan Technology** Cleveland, Ohio www.banyantechnology.com	**Banyan Carrier Connect**	Creates and maintains real-time, direct connectivity between shippers and their preferred carriers, as well as collects client-specific rates, transit times, and quote IDs from carriers.
H	**BestTransport.com** Columbus, Ohio www.besttransport.com	**BestShippers TMS**	Enables shippers to optimize loads, execute advanced tendering rules (both inbound and outbound), track shipments, pay freight bills, and have immediate and accurate visibility into every transaction. Users can also view available carrier capacity in real time to optimize carrier selection.
L	**CDM Software Solutions** Chicago, Ill. www.cdmsoft.com	**CDM WinFrt**	Facilitates simple data flow from quotes to operations. Standard modules include quotes, booking confirmation, air import/export, air domestic, ocean import/export, invoicing and job costing, database maintenance, and multiple level security.
H	**Cheetah Software** Westlake Village, Calif. www.cheetah.com	**Cheetah Freight**	Delivers real-time wireless solutions to automate and optimize pickup, delivery, dispatch, and customer service for private fleet and LTL carriers of any size.
H	**ClearTrack** Brentwood, Tenn. www.cleartrack.com	**ClearTrack Import TMS**	Integrates retail clients' internal supply chain information systems with external carrier networks to provide end-to-end visibility of transportation activity events.
H L	**Codeworks** Columbus, Ohio www.ctcodeworks.com	**WDLS Traffic**	Maximizes margins on orders by pooling shipments, storing routes, and interfacing with existing systems.
H L	**CT Logistics** Cleveland, Ohio www.ctlogistics.com	**FreitRater**	Accrues, assigns, costs, rates, and accounts for all freight/shipping and transportation activity.
H L	**CTSI** Memphis, Tenn. www.ctsi-global.com	**CTSI TMS**	Gives users the ability to manage orders, optimize loads, select best carriers, tender shipments, track their progress, and file claims.
H L	**Descartes Systems Group** Waterloo, Ontario www.descartes.com	**Descartes Transportation Management**	Manages contract carriers from shipment planning through execution and settlement. Descartes Transportation Management helps logistics managers, shippers, and third parties simultaneously evaluate transportation alternatives to find the most efficient shipping method.

H Hosted on the vendor's site
L Licensed to the user

	VENDOR	PRODUCT	DESCRIPTION
H	**Flow Logistics** Bend, Ore. www.flowlogistics.com	**eFlow**	Provides a real-time application to accurately build, route, optimize, assign, track, and bill shipments. eFlow makes efficient use of transportation resources by managing the entire shipment process, regardless of mode – truckload, LTL, intermodal, rail, air, small parcel, or ocean.
H	**HighJump Software** Eden Prairie, Minn. www.highjumpsoftware.com	**HighJump Transportation Advantage**	Provides tools to automate once-manual optimization processes, improve customer service, and reduce costs. Managers can spend more time on strategic transportation requirements and less effort on running scenarios.
H L	**i2 Technologies** Dallas, Texas www.i2.com	**i2 Transportation Planning and Management**	Delivers transportation modeling and analysis, planning and management, bid collaboration, supply chain visibility, and replenishment planning.
H L	**Infor** Alpharetta, Ga. www.infor.com	**Infor SCM Transportation Management**	Simplifies the complex nature of global trade by managing the inbound and outbound transportation of products from order inception to delivery.
H L	**JDA Software** Scottsdale, Ariz. www.jda.com	**JDA Transportation and Logistics Management**	Helps shippers, carriers, and transportation service providers effectively manage multi-modal logistics networks.
H L	**Kewill** Marlborough, Mass. www.kewill.com	**Clippership**	Enables parcel shippers to shop for optimal rates, services, and routings and ship with multiple carriers from one system, thus eliminating the need to learn multiple systems.
H	**LeanLogistics** Holland, Mich. www.leanlogistics.com	**LeanLogistics On-Demand TMS**	Provides complete daily planning, execution, settlement, and procurement functions that improve business processes, increase operating efficiency, and reduce transportation costs.
H	**Manhattan Associates** Atlanta, Ga. www.manh.com	**Transportation Lifecycle Management**	Links strategic plans to actual transportation processes to gain global visibility into all shipping activities, allowing for more coordinated operations among trading partners.
L	**Oracle** Redwood Shores, Calif. www.oracle.com	**Oracle Transportation Management**	Integrates and streamlines transportation planning, execution, freight payment, and business process automation on a single application across all transportation modes.
H L	**RedPrairie** Milwaukee, Wisc. www.redprairie.com	**Transportation Management**	Automates transportation tasks and brings better visibility to the entire set of order fulfillment activities in play at any moment. It connects multiple parties and business processes throughout the broader supply chain, while continuously optimizing all transport variables, bringing organizational efficiencies and cost reductions.

BUYERS GUIDE

H Hosted on the vendor's site
L Licensed to the user

	VENDOR	PRODUCT	DESCRIPTION
H L	**RMI** Atlanta, Ga. www.railcarmgt.com	**ShipperConnect FMS**	Traces railcars contained in permanently assigned fleets, or rail shipments loaded in "free-running" equipment. It monitors inbound and outbound rail shipments using information from Class I railroads and more than 300 short line and regional railroads.
L	**SAP** Walldorf, Germany www.sap.com	**mySAP Supply Chain Management**	Offers transportation planning and shipment completion capabilities, shipment cost calculation and settlement, customer freight billing, service agent selection, and follow-up supervision of shipments.
H	**Sterling Commerce** Dublin, Ohio www.sterlingcommerce.com	**Sterling Transportation Management System**	Provides shippers with efficient planning and execution of inbound and outbound transportation processes. The solution delivers transportation planning, shipment execution, financial settlement, reporting, and analytics.
L	**TECSYS** Montreal, Quebec www.tecsys.com	**EliteSeries Transportation Management System (TMS)**	Empowers shippers by optimizing the rating, routing, manifesting, tracking, and post-shipment analysis for all small package and LTL shipments. This allows users to improve customer service and reduce costs through the efficient planning and execution of their inbound and outbound transportation processes.
H	**Telargo** Jersey City, N.J. www.telargo.com	**Telargo Mobile Asset Management System**	Enables users to optimize resources, streamline business processes, maximize productivity, and minimize expenditures. Telargo solutions empower business owners to implement best practices for advanced fleet and workforce management.
H	**Transplace** Plano, Texas www.transplace.com	**Transplace TMS**	Assists users with optimal mode selection by analyzing cost and service requirements for shipments, then recommending the optimal mode a user should select for the best performance.
H	**TransWorks** Fort Wayne, Ind. www.trnswrks.com	**Transportation Management Solution**	Provides rating, tendering, exception management, scheduling, trailer pooling, freight pay, tracking, and reporting functionalities for truckload, intermodal, and rail shippers.
H	**UltraShipTMS** Wilmington, Del. www.ultrashiptms.com	**UltraShipTMS**	Gives logistics managers total network visibility and control over inbound and outbound transportation, ensuring proper coordination, optimal planning, and consistent execution. The Web-based systems architecture integrates silo applications for true end-to-end information sharing and process accountability.
H L	**Web Freight Pro** Fort Mill, S.C. www.webfreightpro.com	**Web Freight Pro**	Allows users to make use of a core shipment entry and tracking system with or without the benefit of add-on modules such as document imaging, warehouse management, and intelligent rate shopping, among others.
H L	**Wireless Matrix** Reston, Va. wirelessmatrixcorp.com	**FleetOutlook**	Facilitates the full value chain of dynamic schedule planning execution. From vehicle mapping and XML data export to optional telematics monitoring, it offers features that maximize productivity and reduce cost.


RAYMOND

by Amanda Loudin

A Sorted Tale

A new automated sorter helps AWBC get the right books to the right place and into the hands of eager bookworms.

American Wholesale Book Company (AWBC), based in Florence, Ala., serves all types of retailers in the Southeast, from behemoth brick-and-mortar booksellers to the corner bookstore to online outlets. As a leading book wholesale and distribution company, AWBC works hard to ensure that book lovers have the perfect novel, biography, or specialty titles in their hands when they want them.

AWBC counts among its retail customers Books-A-Million, its parent company and the nation's third-largest book retailing chain. Books-A-Million operates retail "superstores," Bookland traditional bookstores, Joe Muggs newsstands, and Booksamillion.com, a successful e-commerce Web site that was launched in 1998. The company also sells wholesale to Sam's Clubs and several other retailers.

When it became clear that its returns process needed updating to keep up with growing customer demands, AWBC didn't hesitate to book a solution. The company's 350,000-square-foot distribution center now dedicates about 40,000 square feet to returns.

"Our returns process was manual and labor intensive, and we needed to add headcount to our front-end operations," says Sondra McCulley, vice president of operations. "We knew we could find a more efficient way to operate and reduce labor requirements."

At the same time, AWBC was looking for a way to cut costs from its returns operations. A new automatic sortation system fit the bill.

LOOKING FOR A PARTNER

To select the right sorter for its needs, AWBC established a team to scout the possibilities. "We looked at several vendors to determine which sorter would be right for our application," explains McCulley. "We considered the size of the footprint, the cost, payback, and overall labor reduction we could achieve."

After site visits to locations running sorters for similar applications, AWBC selected EuroSort Systems, a global supplier of advanced tray sorters with U.S. offices in Owings Mills, Md., along with The Numina Group, a Woodridge, Ill.-

CONTINUED FROM PAGE 83

based automated distribution controls provider that could make the project a turnkey solution. "EuroSort had a good reputation and its equipment had a much smaller footprint than other sortation systems," says McCulley. "We needed to achieve ROI within two years, and it could provide that as well."

Before signing off on the project, however, AWBC sent a team to check out the sorter at work in a Harper Collins distribution center in Scotland. "We wanted to see the equipment in action," McCulley explains. "We also wanted to make sure the sorter could handle books without damaging them."

Also key was the chance to interview the Harper Collins management team about its relationship with EuroSort. "We saw they had a good rapport with EuroSort, which was reassuring," says McCulley.

The AWBC team then met with The Numina Group. "It was clear that they understood our business and how to make the project happen," McCulley says. "The two companies comprised a strong team."

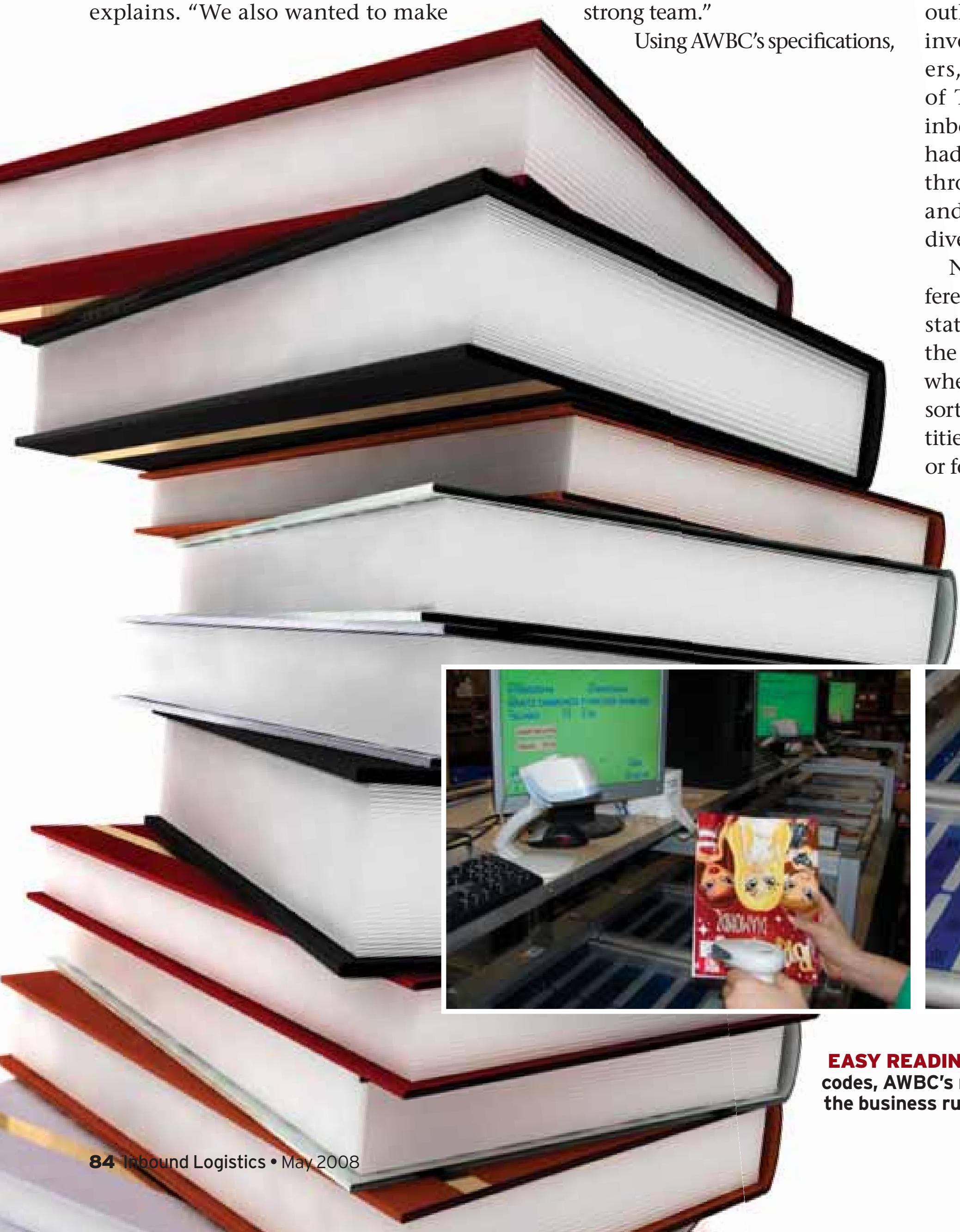
Using AWBC's specifications, EuroSort built the new sorter at its plant in Holland, and shipped it to the book company several months later. To allow a quick start after the equipment arrived, the software integration began while the sorter was being assembled. When the equipment was delivered, both EuroSort and Numina were ready to go.

It was crucial that the new equipment sort by "return to publisher"–no small feat, considering that AWBC deals with more than 2,000 different publishers.

"When books come back from retail outlets, AWBC has to handle the excess inventory and return it to the publishers," says Dan Hanrahan, president of The Numina Group. "The actual inbound volume always fluctuates. We had to set up a system that would sort through several different business rules and bar codes to determine where to divert the products."

Numina set up the sorter with 150 different active divert locations. From their stations, operators scan bar codes on the books and the software determines where to divert them. From there, the sorter consolidates returns to case quantities for shipment back to the publisher or for return to inventory.

The initial equipment installation went smoothly. "We pushed to run at the highest volume possible right from the start," McCulley says. "We didn't allow



EASY READING: When operators scan the books' bar codes, AWBC's new automated returns process applies the business rules and exceptions required for sorting.

the equipment any downtime during that initial phase."

Unfortunately, in its excitement to take the equipment to full throttle right away, AWBC neglected to perform the preventive maintenance that Numina and EuroSort had recommended. "The equipment shut down because we pushed it too hard," McCulley admits. "EuroSort did a great job helping us get the equipment back up and running again in short order."

The only other implementation hiccup involved bar-code scanning. "Many 17-digit book bar codes are getting smaller," says Hanrahan. "Some are so small that it was tough to scan them with the equipment we had selected. We had to invest in new camera-based scanners."

Small bumps in the road are to be expected with large-scale projects such as this. "Moving from manual to automated operations can be challenging," Hanrahan explains. "Extracting all the business rules and customer/supplier exceptions and incorporating them into real-time, millisecond sorting decisions isn't always a straightforward process."

The new sorter and software have met all of AWBC's expectations, helping the company achieve a 20-percent labor reduction in the cost per unit. Furthermore, the book company has been able to reallocate some staff members to front-end operations. "We now have the ability to keep up with returns and sort bargain books by title," says McCulley. "We can handle it more quickly and efficiently than when we worked manually."

AWBC wanted a partner that could execute all its business rules in real time, as well as develop rules for exceptions. "For instance," Hanrahan says, "on a single pass, the control software can sort books to a high-volume publisher, and dynamically assign returns by titles and secondary publishers. It also can later be developed to switch to category mode, enabling it to sort by department when a new store opens."

AWBC has been so happy with the results of the sorter that it is considering adding a new one for outbound operations. "We're evaluating a much larger sorter, so we're starting the search process all over again," McCulley explains. "EuroSort has been easy to work with and we've been happy with the results, so it's on our list of potential partners."

AWBC has embraced its new technology and successfully guided its returns process into the automated age. The results have been just what the company wanted. "A project like this goes straight to the bottom line," says Hanrahan.

That's a story with a happy ending. ■

TECHUPDATE

THE LATEST | IN LOGISTICS TECHNOLOGY

LXE

WHAT'S NEW: A Bluetooth ring scanner.

THE VALUE: The small, lightweight 8650 ring scanner transmits bar-code data to any Bluetooth-enabled handheld, wearable, fixed-station, or vehicle-mount computer from up to 30 feet away. It can withstand four-foot drops and can deliver up to 17,000 scans on a single charge of its battery, which can operate for nearly 24 hours between charges.

www.lxe.com
770-447-4224

hardware

Citizen Systems America

WHAT'S NEW: An adjustable-width printer.

THE VALUE: The CT-S4000 holds large-capacity paper rolls in three widths up to 112 millimeters, providing more printing space for shipping and bar-code labels. The printer can be positioned horizontally, vertically, or wall-mounted.

www.citizen-systems.com 800-421-6516

CipherLab

WHAT'S NEW: A handheld scanner with a three-position stand.

THE VALUE: The CipherLab 1500 scanner can be wall-mounted, placed on a desktop, or used as an elevated auto-sense scanning unit.

www.cipherlab.com 888-300-9779

Datalogic Mobile

WHAT'S NEW: Added features to the Pegaso PDA mobile computer.

THE VALUE: The addition of E-GPRS, a technology that uses cell phone networks to provide a mobile broadband connection, and Windows Mobile enhance Pegaso in applications where users need to access their enterprise network when outside the four walls.

www.mobile.datalogic.com 800-929-7899

Tharo Systems

WHAT'S NEW: A thermal transfer bar-code label printer.

THE VALUE: With a large media window for viewing and monitoring supplies, the H-6000 series printers feature a high-speed USB 2.0 interface for fast data transfer and a real-time clock for time and date stamping of labels. After downloading label formats from a PC to the printer's flash memory, users can take the printer to another location, connect a standard keyboard, and print.

www.tharo.com 800-878-6833

rfid/wireless

Sky Shield USA

WHAT'S NEW: A real-time cargo tracking system.

THE VALUE: Measuring roughly the same size as a deck of cards, the Trip Trak GPS transmitter can be placed in a load of cargo for location tracking and temperature monitoring. A 24-hour service center receives alerts from the device if the temperature exceeds the set parameters. The monitoring center can also enter the route drivers will take and be alerted if they deviate from it; this function helps locate stolen trucks and/or cargo.

www.triptrakgps.com 866-654-8708

CONTINUED FROM PAGE 87

Metalcraft

WHAT'S NEW: A waterproof RFID tag.
THE VALUE: Delivering long-range read capability up to 10 feet, the RFID Hard Tag can withstand exposure to a range of chemicals, water depths of more than 130 feet, and 20-ton impacts.

www.idplate.com ✆ 800-437-5283

partnerships

Cast Iron Systems and SPS Commerce

WHAT'S NEW: A solution to connect trading partners.
THE VALUE: Cast Iron Integration Solution for SPS enables suppliers to connect back-office applications with SPS' outsourced EDI service, SPSCommerce.net, and exchange information with retailers including Costco, Best Buy, and Wal-Mart.

www.castiron.com ✆ 650-230-0621

BestTransport and iDashboards

WHAT'S NEW: The development of a graphical TMS.
THE VALUE: The tool, BestInsight, analyzes and tracks transportation data and provides real-time business activity monitoring of key performance indicators through customizable email and dashboard alerts.

www.besttransport.com ✆ 614-888-2378

Wesley International and FastFetch Corporation

WHAT'S NEW: An order fulfillment technology solution.
THE VALUE: FastFetch enables cluster picking, reverse logistics, and sequenced picking using low-cost wireless infrared communications for light-directed picking from storage bays and light-directed putting to cart locations.

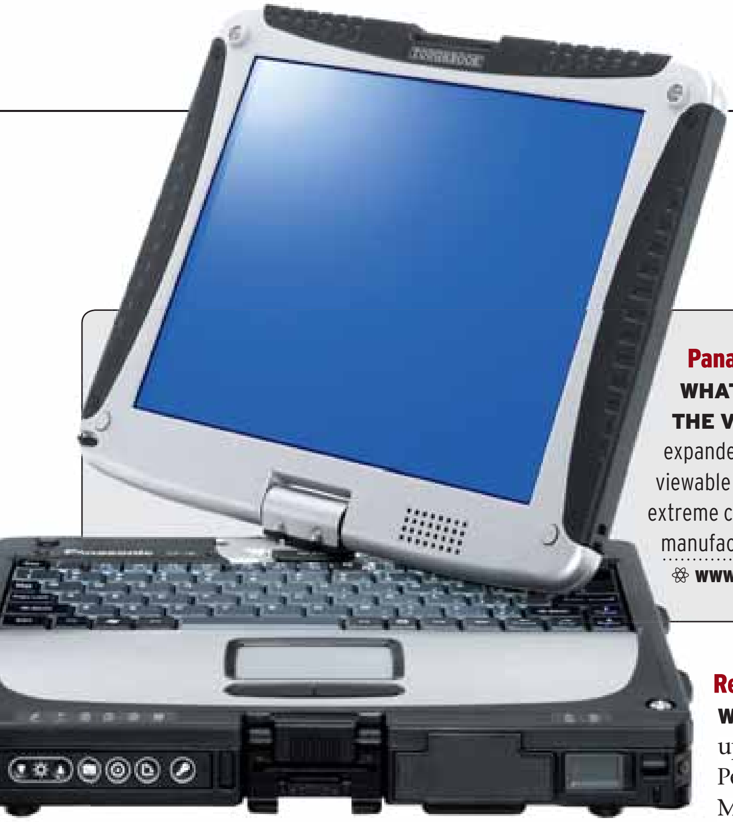
www.wesleyinternational.com
✆ 800-241-2869

web

GLWarehouses.com

WHAT'S NEW: A warehouse-locating Web site.
THE VALUE: GLWarehouses.com allows registered members to search for available warehouse space by location and/or specific attributes and display the results in map or list form.

www.glwarehouses.com ✆ 888-565-3921



Panasonic

WHAT'S NEW: A rugged, mobile tablet PC.

THE VALUE: Configurable as a laptop or a tablet PC, the Toughbook 19 has expanded memory capabilities, a magnesium-alloy case, an anti-glare sunlight viewable display, GPS wireless, and an integrated camera. Its ability to withstand extreme conditions makes the Toughbook suitable for use in warehouses, manufacturing facilities, and outdoor settings.

www.panasonic.com ✆ 800-662-3537

Freight & Shipping

WHAT'S NEW: An application for locating shipping sources.

THE VALUE: Shippers can generate free carrier quotes by entering information such as destination and origin ZIP codes and shipment weight.

www.freightnshipping.com ✆ 877-618-6058

Reddwerks

WHAT'S NEW: An update to its Warehouse Performance Management (WPM) software.

THE VALUE: Reddwerks v3.0 WPM provides the warehouse with one order filling solution regardless of picking technology. All major systems–including pick-to-light, voice, RF bar-code scanning, and carousels–can be used to process orders efficiently.

www.reddwerks.com ✆ 512-633-9433

Terra Technology

WHAT'S NEW: The introduction of an inventory forecasting solution.

THE VALUE: Multi-Enterprise Demand Sensing (MDS) reduces forecast errors by applying signal detection and pattern recognition techniques to daily streams of data. MDS creates end-to-end planning incorporating demand signals from throughout the supply chain, including point-of-sale data, channel inventory, and retailer forecasts.

www.terratechnology.com ✆ 203-847-4007

software

Melton Technologies

WHAT'S NEW: The release of shipment tracking software.

THE VALUE: The module, NetTrac, allows fleets to offer shippers online access to real-time shipment tracking information including online document images, reporting, rating, order entry, claims filing, and driver communications.

www.mtihorizon.com ✆ 800-888-1246

Trade Tech

WHAT'S NEW: An online application for customs compliance.

THE VALUE: The Trade Security application addresses the new requirements of the U.S. Customs and Border Protection's 10+2 documentation mandate.

www.tradetech.net ✆ 425-837-9000

NEWSERVICES

YOUR BUSINESS LOGISTICS RESOURCE

American Airlines Cargo

WHAT'S NEW: The expansion of cargo service to Europe.

THE VALUE: AA Cargo now offers daily nonstop widebody service from New York's Kennedy International Airport to Barcelona and Milan utilizing Boeing 767-300 aircraft. The new routes increase capacity between the United States and Europe, and open interline opportunities to the Middle East and Asia.

www.aacargo.com

800-227-4622

XTRA Lease

WHAT'S NEW: The publication of the 2008 *Size and Weight Update*.

THE VALUE: XTRA Lease's free annual state-by-state listing of size and weight regulations provides fleets with up-to-date resource material to help manage legal limitations. The 30-page booklet also offers details on where to obtain hazardous materials and overweight/oversize permits.

www.xtralease.com 800-367-9872

Southworth Products

WHAT'S NEW: The introduction of a battery-powered lifter/transporter.

THE VALUE: Lifting and lowering at the touch of a button thanks to a 24-volt battery, the Powered Dandy Lift is available in five models with capacities from 220 to 500 pounds, table sizes of 20 inches x 31.5 inches and 24 inches x 36 inches, and raised heights to 51 inches. Other features include a battery status indicator and onboard charger, full

CONTINUED FROM PAGE 91

To learn more, contact these companies directly. Remember to mention this issue date and page to get the right information.

shielding of all electrical components, smooth-rolling casters, parking locks, and a comfort-shaped handle.

www.southworthproducts.com
207-878-0700

Team Worldwide

WHAT'S NEW: The opening of an Ohio Valley hub.

THE VALUE: Located in Columbus, Ohio, the 28,800-square-foot warehouse facility with office space, 10 dock doors, and two drive-up ramp doors opens as part of a network expansion plan that will support the company's existing 25,500-square-foot hub at the corporate facility in Winnsboro, Texas.

www.teamair.com 903-342-3516

Panalpina

WHAT'S NEW: The introduction of a new airfreight service to Latin America.

THE VALUE: In partnership with Centurion Air Cargo, Panalpina launches Palmair, offering direct transshipment from Miami to Latin America. Palmair serves destinations including Bogota, Medellin, and Barranquilla, Colombia; Caracas, Venezuela; Lima, Peru; and Manaus, Brazil.

www.panalpina.com 305-499-9800

Interroll

WHAT'S NEW: A three-component flow rack.

THE VALUE: Comprised of only tubes, connectors, and supporting elements, the Flex Flow Rack can be constructed for a variety of operational tasks and easily reconfigured to meet changing automation needs.

www.interroll.us 905-727-3399

Lauth

WHAT'S NEW: Plans for two bulk distribution facilities.

THE VALUE: Located in South Carolina's North Pointe Industrial Park, the facilities will be among the largest in the region. The site is four miles from the Port of Charleston and five miles from Interstates 26 and 526.

www.lauth.net 317-848-6500

Crown Equipment Corporation

WHAT'S NEW: The introduction of a stacker for use in small spaces.

THE VALUE: Designed to maneuver in tight aisles and crowded backrooms, the SH/SHR 5500 Stacker Series can lift loads weighing up to 4,000 pounds.

www.crown.com 419-629-2311

New Century Transportation

WHAT'S NEW: The relocation of its Martinsville, W.V., truckload operation.

THE VALUE: The move to Chambersburg, Pa., creates a pool of 150 trailers and 50 tractors immediately adjacent to both established and new volume shippers along the I-81 corridor.

www.nctrans.com 877-870-4031

Evergreen Line

WHAT'S NEW: A service linking Japan and the U.S. West Coast.

THE VALUE: The Japan-America Shuttle (JAS) fixed-day weekly service links key ports in Japan.

www.evergreen-marine.com

Old Dominion Freight Line

WHAT'S NEW: The opening of a new service center in Dallas, Texas.

THE VALUE: The 160,000-square-foot, 234-door facility represents a major

CONTINUED FROM PAGE 92

To learn more, contact these companies directly. Remember to mention this issue date and page to get the right information.

expansion in Dallas compared to the previous 130-door service center. Old Dominion's 380 employees at the new service center handle more than 3,000 shipments each day, covering a 150-mile radius around Dallas.

www.odfl.com ✆ 800-432-6335

NYK Line

WHAT'S NEW: The expansion of European container service from Singapore.

THE VALUE: The newly established EU5 service enhances schedule reliability and helps to better meet shippers' needs in a fast-growing market. Eight vessels with an approximate capacity of 5,500 TEUs serve EU5.

www.nykline.com ✆ 888-695-7447

Roadway

WHAT'S NEW: The launch of expedited ocean service from China to the United States.

THE VALUE: At least six days faster than standard ocean transit, the new service for less-than-containerload shipments features multiple weekly sailings from seven origin ports in China. Priority unloading of containers and deconsolidation services at U.S. ports further speed deliveries.

www.roadway.com ✆ 330-384-1717

Pelican Products

WHAT'S NEW: A transport case designed to be carried manually or on pallets.

THE VALUE: The 1730 model transport case provides nearly 10,000 cubic inches of storage space, rugged polyurethane wheels, and an integrated automatic pressure equalization valve that keeps moisture out and prevents vacuum lock so the case is easy to open at any altitude.

www.pelican.com ✆ 310-326-4700

Oak Harbor Freight Lines

WHAT'S NEW: The addition of overnight service from Southern California to Arizona.

THE VALUE: The new offering improves service to and from, and transit times through, the company's direct service territory. It also minimizes unloading and loading time on all shipments by reducing the number of carriers required to reach the destination.

www.oakh.com ✆ 800-858-8815

Purolator

WHAT'S NEW: The introduction of cross-border service for U.S. and Canadian businesses.

THE VALUE: The Purolator Trade Solutions service facilitates regulatory issues, customs brokerage, and distribution in cross-border transactions.

www.purolatorusa.com ✆ 800-511-4811

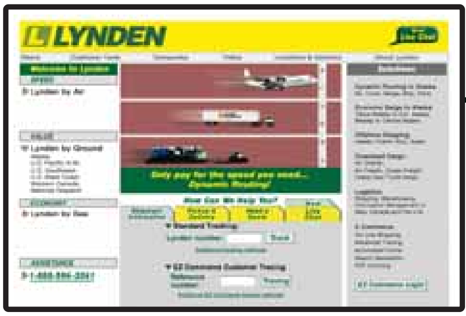
Associated Global Systems (AGS)

WHAT'S NEW: The addition of import integration services.

THE VALUE: AGS Import Advantage provides door-to-door service with its overseas affiliates at the point of origin, ensuring all paperwork is in order, including the new 10 + 2 additional data elements of CBP's Automated Manifest System. The service transmits documents to AGS in the United States to prevent customs bottlenecks and speed clearance. AGS also offers an online freight management system for real-time control.

www.agsystems.com ✆ 800-645-8300

3PLs



Lynden • www.lynden.com

Over land, on the water, in the air – or in any combination – Lynden has been helping customers solve transportation problems for almost a century. Operating in such challenging areas as Alaska, Western Canada and Russia, as well as other areas around the globe, Lynden has built a reputation of superior service to diverse industries.

Ryder • www.ryder.com

Ryder provides end-to-end supply chain, warehousing, and transportation solutions including: third-party logistics (3PL), fleet management, RFID operations, reverse logistics, supply chain management, transportation management/freight management, truck rental, truck leasing, warehousing, lead logistics provider, lead logistics manager, service parts operations, and distribution center management.

AUTO ID

SATO • www.satoamerica.com

SATO is a pioneer in the Automatic Identification and Data Collection (AIDC) industry, and the inventor of the world's first electronic thermal transfer bar-code printer. It revolutionized the bar-coding industry by introducing the Data Collection System (DCS) & Labeling concept – a total bar-code and labeling solution providing high-quality bar-code printers, scanners/handheld terminals, label design software, and consumables. SATO is one of the first in the industry to introduce a complete, multi-protocol EPC-compliant, UHF RFID solution. Turn to SATO for all your bar-code and RFID printing needs.

E-COMMERCE

Freightgate • www.freightgate.com

Freightgate offers unique Internet solutions for logistics and supply chain management. The PLTX Suite covers the entire logistics management lifecycle: GTM-Trek! for RFQ and tender management; WISA the innovative What-If-Scenario Analysis tool; Tariff-Trek! for service contract and quote management; FMC-Trek! for FMC publishing compliance; I-Trek! for supply chain collaboration, visibility and control; Pay-Trek! for freight bill audit and payment; I-Sail! for online sailing schedules; and Schedule-Trek! for airline scheduling.

WEB_CITE CITY

www.inboundlogistics.com/web_cite

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E-Commerce Fulfillment – Real Estate

E-COMMERCE FULFILLMENT

Federal Fulfillment Services • www.federalfulfillment.com

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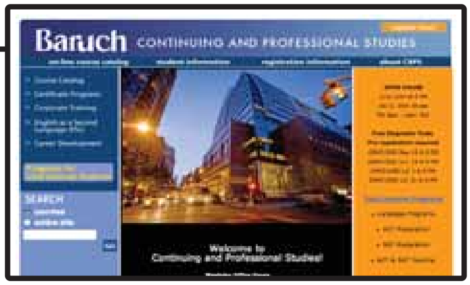
EDUCATION

Baruch College • www.baruch.cuny.edu/caps



Welcome to Baruch College's Division of Continuing and Professional Studies. Think of us as your education partner. Are you looking for a career change or a promotion? We offer courses and certificates in: import trade operations and procedures; export trade operations and procedures; international entrepreneurship; customs broker license preparation; and international supply chain security and compliance. You will join a dynamic learning community, take classes that are offered in the classroom or online, and are taught by industry professionals.

MATERIALS HANDLING

Sealed Air • www.sealedairprotects.com

Sealed Air is a leading global provider and manufacturer of a wide range of packaging and performance-based materials and equipment systems that serve food, medical, and an array of industrial and consumer applications. For more than half a century, Sealed Air employees around the globe have applied deep understanding of customers' businesses to deliver innovative packaging solutions. Operating in 51 countries, Sealed Air's widely recognized and respected brands include Bubble Wrap® cushioning, Fill-Air® Inflatable Packaging, Jiffy® protective mailers, and Instapak® foam-in-place systems.

REAL ESTATE LOGISTICS

CB Richard Ellis • www.cbre.com

CB Richard Ellis (CBRE) is the world's premier, full-service real estate services company. Whether it's a local, regional, national, or global assignment, CBRE helps clients make informed business decisions. CBRE's strengths, which it applies to every transaction, assignment, and client relationship, include an intimate knowledge of virtually every major market in the world and intellectual capital and technology resources that develop and deliver superior analytical, research, and client service tools. CBRE empowers its people and clients with the information they need to anticipate market opportunities, seize competitive advantages, and execute the best possible real estate strategies.

SITE SELECTION

Joplin Chamber of Commerce • www.joplincc.com

Thinking of Joplin, Mo., as the next site for your headquarters or distribution center? Your first stop should be The Joplin Area Chamber of Commerce's Web site. You'll find a complete business profile of Joplin, including population, location, infrastructure, labor, education, real estate and cost-of-living statistics. The Joplin Area Chamber of Commerce is a private, not-for-profit organization of business and professional people committed to improving the economic prosperity and quality of life in the Joplin area. Member of NASCO.

Kansas City Department of Aviation
www.flykci.com/aviationdepartment/cargo

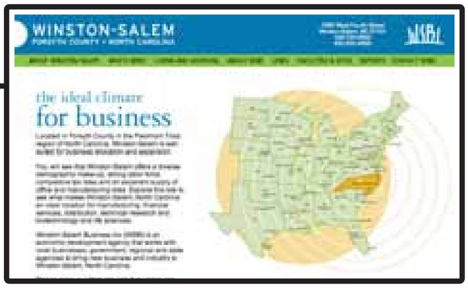
An exceptional site for aviation-related businesses, with 7,000 acres of land for development; an expansive cargo-handling infrastructure; warehouse and office space; on-site Foreign Trade Zone; and few flight delays. To learn more, visit our Web site or e-mail gary_bartek@kcmo.org.

North Central Iowa Alliance • www.northcentraliowa.net

Interstate 35 runs through our region, connecting the metropolitan areas of Minneapolis-St. Paul and Des Moines. The Avenue of the Saints (I-35, US 18 and Iowa 27) traverses our region and connects St. Paul and St. Louis. For more information call 800-944-1708.

Winston-Salem • www.wsbusinessinc.com

Winston-Salem, North Carolina, is an ideal location for manufacturing, financial services, distribution, technical research, and biotechnology and life sciences. Winston-Salem Business Inc. (WSBI) is an economic development agency that brings new business and industry to the region. For more information, please call 800-220-9724.



WAREHOUSING

A.N. Deringer • www.anderinger.com

A.N. Deringer Inc. is a leading provider of international logistics services including freight forwarding, warehousing and distribution, customs brokerage and consulting, cargo insurance, duty drawback, and meat inspection. Deringer combines 33 U.S. offices with a global agency network to facilitate the movement of cargo throughout the world. Visit A.N. Deringer on the Web at www.anderinger.com.

Bilkays Express Co. & Distribution Warehouse • www.bilkays.com

In today's world, modern equipment is needed to handle the warehousing needs of the vast variety of businesses in the Northeast. So, Bilkays has all the systems and equipment you would expect to provide warehousing for whatever your needs may be. And you can be sure our specialized RF Management System and equipment can handle the toughest jobs. Our services include contract warehousing, custom packaging, customer pickup, dedicated contract service, EDI, innovative pricing, logistics, and much more. Find out more by visiting our Web site.

DSC Logistics • www.dsclogistics.com

Looking for strong warehouse management and proven startup methodology? Look to DSC. After DSC learns about your requirements, logistics engineers transform your profile into an operational layout and work plan. Then a cross-functional team prepares and implements a smooth transition of your business into our network of logistics facilities. Once you're up and running, the DSC Customer Care Team is on the job, analyzing, interpreting, and communicating information to maximize the potential of your supply chain. But DSC services go far beyond warehousing. Its integrated transportation and packaging programs enable one-stop shopping to help you reach your business goals.

Exits - Global Wizard • http://documentsforexports.com

Exits' Global Wizard Web-based software suite integrates document generation, document determination, and denied persons screening. Your organization can realize quick ROI by using our methodology to generate and distribute common export documents. Custom documents can include your company logo and digital signature. Global Wizard can also receive data from your existing ERP or other back-end system using flat files or Web services to improve your export staff's efficiency and processes.

Kenco Group • www.kencogroup.com

Adding value to your bottom line – that's the mission of Kenco Logistic Services. For more than 50 years, Kenco Logistic Services has guided some of the most demanding supply chains in the world. Kenco's convergence approach can help you streamline your supply chain and bring a greater return on assets and investments. Kenco invites you to visit this Web site so that you might get to know its services. Then, contact Kenco so that you might truly understand its unique strategic advantages.

Magic Warehousing and Distribution, Inc.
www.magicwarehousing.com

Magic Warehousing is a full-service warehousing and distribution center provider with the ability to custom-tailor warehousing and transportation programs to meet your specific needs. With its modern truck fleet, Magic Warehousing provides diversified import/export service from the United States to Puerto Rico. Shippers have come to depend on Magic Warehousing to handle even the most demanding requirements thanks to its experienced personnel, state-of-the-art equipment, and accurate on-time delivery.

Mettler Toledo, Inc. • www.mt.com/transport

Mettler Toledo has a wide range of solutions that fit depots of all sizes, from large automated sorting hubs to smaller warehouse and logistics operations. Solutions range from simple individual weighing of letters to high-speed dimensioning and identification installations handling tens of thousands of packages per hour. Visit www.mt.com/transport to learn more about our products and services.

PSS Warehousing • www.pssdist.com

A leader in warehousing, storage, transportation, and distribution since 1983, PSS is the Northeast's premier services provider. Fortune 500 companies have come to rely on PSS for its expertise in grocery distribution, reverse logistics, transportation, and packaging services. Achieving this goal has taken continuous investments in technology, equipment, and facilities, which has paid off by keeping PSS at the forefront of every aspect of warehousing and transportation. Go online and discover the PSS service advantage for your company.

IN THIS SECTION:

Warehousing – WMS

Wagner Industries.com • www.wagnerindustries.com

Wagner Industries is not just a trucking company, warehousing company, or any other narrowly defined organization. We're a third-party logistical services company with multiple competencies to provide diverse services for our many customers across the United States. We provide contract trucking and transportation management, distribution centers, warehousing centers, packaging and assembly operations, and fulfillment. Plus, all services are provided with the highest standards of quality and the most technologically advanced information management systems. With our many areas of expertise, we can tailor a supply chain solution for your company to provide you with superb service while lowering your net cost.

Warehouse Specialist, Inc. • www.wsinc.com

Reliability is everything. At WSI, that's been our approach to integrated logistics and supply chain solutions for more than 40 years. Our promise of Condition, Count & Time™ ensures accurate, timely and sound performance–every time. Recognized as one of the top 3PL companies in North America, WSI delivers custom solutions for warehousing/distribution, fulfillment, transportation, import/export, information technology, and customer support services. Depend on WSI for increased efficiency, reduced costs, and absolute reliability.

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630-574-0985
www.cscmp.org

June 8-13, 2008, Explore Customer Conference, Orlando, Fla. Solutions provider QAD offers this program covering products, technology, and strategies to help organizations and logistics professionals advance to the next level. Keynote speaker Kevin Carroll, founder of The Katalyst Consultancy, will deliver an address titled, "Rediscovering Play: Bringing Fun and Passion To Your Work…And Life."

212-453-2147
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June 9-10, 2008, Greening the Supply Chain Conference, Sacramento, Calif. This event, co-sponsored by the Council of Supply Chain Management Professionals, the International Warehouse Logistics Association, and the Warehousing Education and Research Council, offers information about technologies, regulations, and best practices in sustainable resources.

630-990-0001
www.greeningthesupplychain.com

June 12, 2008, Export Compliance, Atlanta, Ga. Presented by Liz Gant, export compliance analyst at Baltimore-based logistics service provider Samuel Shaprio and Company, this seminar features guest speakers from both Immigration and Customs Enforcement (ICE) and the Department of Justice.

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