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January 2013

2013 RATE OUTLOOK

New era of collaboration

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LM management UPDATE

AN EXECUTIVE SUMMARY OF INDUSTRY NEWS

◆ **Drivers (still) wanted.** The American Trucking Associations (ATA) reported in December that the annualized linehaul truck driver turnover rate at large truckload fleets is intact at more than 100 percent for the second straight quarter. ATA said that for fleets reporting more than $30 million in annual revenue, driver turnover fell 2 percent to 104 percent in third quarter of 2012, which is slightly below the five-year high of 106 percent from the second quarter of last year. What's more, the ATA said that this marks the first time since the fourth quarter of 2007 and the first quarter of 2008 in which the driver turnover rate has topped 100 percent in consecutive months. "Increasing competition for quality drivers, coupled with gradual, albeit choppy, growth in demand for trucking services continues to put pressure on the driver market," said ATA Chief Economist Bob Costello. "We believe the industry is actually short between 20,000 and 25,000 drivers, but if freight volumes were to accelerate, I would expect that number to grow and grow rapidly."

◆ **Brighter skies.** The International Air Transport Association (IATA) announced an upward revision to its industry financial outlook. For 2012, airlines are expected to return a profit of $6.7 billion (up from the $4.1 billion forecast in October). This is expected to improve slightly to $8.4 billion in 2013. Industry net post-tax margin, however, will remain weak at 1 percent in 2012 and 1.3 percent in 2013. Improved prospects for 2012 are being driven by strong airline performance in the second and third quarters. Despite high fuel prices and a slowing world economy, airline profits and cash flows held up at levels similar to 2006 when oil prices were about $45 per barrel lower and world economic growth was 4 percent.

◆ **Transplace expands into Canada.** Non asset-based third-party logistics (3PL) services provider Transplace said that it has acquired Torus Freight Systems, a Richmond Hill, Ontario-based logistics services provider specializing in Canadian cross-border and intra-Canada freight. Torus will be renamed as Transplace Canada. This deal is the latest example of Transplace growing and expanding on both a service level and a geographic level. In April 2011, it acquired Philadelphia-based SCO Logistics, a 3PL serving the chemical industry. In October 2011 it joined forces with Chicago-based intermodal marketing company Celtic International to form what it described at the time as a leading North American logistics provider.

◆ **New CSA changes take effect.** Following an August announcement in which it announced multiple pending changes to its much maligned government-mandated CSA program, the Department of Transportation's Federal Motor Carrier Safety Administration (FMCSA) announced that the changes went into effect in December. The changes center around CSA's complex scoring system to rate the nation's nearly 700,000 DOT-registered interstate trucking entities on seven "Behavior Analysis and Safety Improvement Categories," known as BASICs. FMCSA said it provided a four-month preview to allow industry stakeholders to review and offer comments on the proposed changes to the FMCSA's SMS, with more than 19,000 companies and 2,900 law enforcement officers participating.

◆ **FedEx accused of overcharging.** A December *Bloomberg* report said that FedEx has been "systemically overcharging" customers by billing business and government offices at higher residential rates. The report stated that this development came to light in the form of an internal e-mail by a FedEx sales executive that was unsealed in a class action lawsuit filed in a federal court in Memphis last year. The suit claims that FedEx Corp. and FedEx Corporate Services overcharged commercial and government customers up to $3 each for millions of delivered packages. A FedEx spokesperson was quoted in the *Bloomberg* report as saying the documents in the lawsuit do not tell the entire story of the case and that the company will continue to defend the allegations.

◆ **GPA rolls out ERTGs.** The Georgia Ports Authority (GPA) recently unveiled its first four electrified rubber-tired gantry cranes (ERTG), making the GPA the first in North America to introduce this cleaner and more efficient method of operation. The new technology reduces fuel consumption by an estimated 95 percent. "This transition to electrified RTGs is an important milestone for the GPA and

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LM management UPDATE

AN EXECUTIVE SUMMARY OF INDUSTRY NEWS

our industry," said GPA Executive Director Curtis Foltz. "This project is the latest in a series of GPA initiatives designed to increase the productivity and capacity of the port in environmentally responsible ways." The new ERTG system was developed with the help of partners Konecranes, Conductix-Wampfler, and Georgia Power, which provided the cranes, the new power system, and the electrical infrastructure, respectively. Through efforts such as electrifying ship-to-shore cranes and refrigerated container racks, the Port of Savannah said it avoids the use of more than 5.4 million gallons of diesel annually.

◆ **Safety first in the yard.** The Port Equipment Manufacturers Association, TT Club, and ICHCA International have jointly published recommended minimum safety features for container yard equipment, identifying features and functional requirements to improve the safety of people, equipment, and cargo. The impetus for the publication, entitled *Recommended Minimum Safety Features for Container Yard Equipment*, came from global analysis of more than 4,000 claims made over a six-year period by port and terminal operators insured with the TT Club. The analysis revealed that 53 percent of the total cost of claims and 75 percent of the cost of injury claims were related to yard equipment. Additionally, 67 percent of costs related to fires were attributed to yard equipment. "These findings point to a heavy concentration of avoidable incidents," said Laurence Jones, TT Club's director of global risk. "Analysis of the Club's data shows that up to 1,600 claims amounting to $130 million resulted from yard incidents, while changes to operational procedure, additional training, and fitting safety equipment to machinery could significantly reduce these claims."

◆ **DHL expands in Florida.** Global express delivery and logistics services provider DHL announced it invested $21 million to expand and modernize its hub and aviation facility at the Miami International Airport. Company officials said that this new 140,000 square-foot facility will function as a DHL shipment processing hub for global shipments from countries throughout the world to Latin America and the Caribbean. DHL U.S. CEO Ian Clough told *Logistics Management* that the main benefit of this expansion is capacity as DHL has seen significant growth—both inbound and outbound—from Latin America and the Caribbean into the U.S. and points north. Second, he said, is enhanced reliability as it allows DHL to increase ability to meet morning delivery times and early cut-offs.

◆ **Change is in the air.** The reshaping of the global air cargo industry over the past 12 months has been dramatic, with enterprising Asia Pacific carriers at the forefront of developments, said Andrew Herdman, executive director of the Association of Asia Pacific Airlines. "The shift of global economic power eastwards is continuing, driven by the rapid development of China and India, with added momentum from other dynamic Asian economies including Indonesia, Korea, Malaysia, Philippines, and Thailand," he said. However, the global economic slowdown has had an impact on air freight, which has remained depressed as a result of weak consumer confidence in Europe and the U.S.—with a corresponding slowdown of exports from Asia. As Asian carriers operate large freighter fleets and account for approximately 40 percent of global air cargo traffic, they have been particularly hard hit by the current cargo market weakness.

◆ **Addressing risk.** For each day of backlog accumulated during a port closure, affected shippers would typically need about eight days to stabilize inventory levels within their supply chains. According to a report by insurance provider Marsh entitled *U.S. Port Strikes—What's at Stake and How to Manage Your Risk*, shippers have a variety of options. Marsh analysts said that port-of-entry diversification should be part of any shipper's "risk portfolio," as well as carrying risk financing solutions like "voyage frustration" and "trade disruption" insurance. "The ability to move goods freely is an essential component of the global economy," said Gary Lynch, global leader of risk intelligence and supply chain resiliency solutions for Marsh Risk Consulting. "Those companies with the right portfolio of risk strategies can more effectively protect themselves from potentially severe losses, while simultaneously gaining market share from less-prepared competitors." □

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SPECIAL REPORT: LIFT TRUCK MANAGEMENT

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WEBCAST

2013 Rate Outlook: Soft spike ahead

Thursday, Jan. 31 @ 2:00 p.m. ET
Register NOW at: logisticsmgmt.com/2013RateOutlook

As carriers set out to fine-tune their yield management strategies, shippers must stay focused on continued collaboration to ensure that sufficient capacity is available when they need it.

Meanwhile, our distinguished panel suggests that shippers monitor macroeconomic trends carefully this year. Due diligence in this regard may mitigate the soft spike in logistics and supply chain costs expected for 2013.

Join our panel of leading economic and transportation analysts as they share their exclusive insight on where rates and capacity are headed over the next 12 months. Attendees will gain a better understating of:

- The current state of the U.S. economy and its impact on freight transportation
- Which way oil and fuel prices are likely to go in 2013
- What to expect in terms of rates and capacity across all modes

Moderators:

Patrick Burnson, Executive Editor, *Logistics Management*

Speakers

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Charles Clowdis, managing director, transportation advisory services, IHS Global Insight
Martin Dixon, research manager, freight rate benchmarking, Drewry Supply Chain Advisors
Jerry Hempstead, president, Hempstead Consulting
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Logistics Management OnDemand

7th Annual Warehouse/DC Operations Survey Results

www.logisticsmgmt.com/WDCsurvey

Join us for this OnDemand Webcast as Group Editorial Director Michael Levans and the research team of Don Derewecki and Norm Saenz from TranSystems put context behind this annual survey that gives U.S. logistics professionals the most up-to-date snapshot available in the market on current activities and trends in warehouse and DC management.

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Norm Saenz
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TranSystems

Moderator:

Michael Levans: Group Editorial Director, Supply Chain Group

LM VIEWPOINT

Fresh look, same mission

BY NOW YOU'VE NOTICED SOME subtle artistic changes in your copy of *Logistics Management* (*LM*). You've already seen a bolder *LM* logo on the cover, tucked neatly in a field of red on the top left hand corner. And by now you've run your eyes over some cleaner type, making the words a little easier for the eye to digest off of the page.

As you turn the pages this month, you'll also notice two new columns: one by Group News Editor Jeff Berman that we're calling Newsroom Notes, and another by Executive Editor Patrick Burnson titled Pacific Rim Report.

As the biggest single generator of reported news in the logistics and transportation industry, Berman spends a large portion of his day engaged in conversations and exchanges with top sources, giving him a unique, insider's perspective. Starting this month, Berman will supplement his daily online reporting in this thoughtful, monthly column. Newsroom Notes will add context to breaking logistics and transportation news stories by including bits and pieces of insight that he's picked up over the past month of reporting.

From his vantage point in our San Francisco office, Patrick Burnson has kept a keen eye on the news and developments in the Transpacific trade lane for the past couple decades. Beginning this month, Burnson's monthly Pacific Rim Report will draw from his daily online work, offering global shippers the latest perspective on port infrastructure developments, ongoing labor struggles, evolving trade agreements with emerging markets, and ocean and air carrier service announcements that will affect the world's busiest trade lane.

The goal behind our artistic re-design is quite simple: Creative Director Mike Roach wanted to make sure that the print version of *LM* is presented in a updated, crisp layout that's easy on the eye. The addition of our two new columns, however, is a little more strategic. Specifically, we wanted to give our print readers a glimpse of the editorial insight that the editorial team is producing daily on **logisticsmgmt.com**.

Follow the work of Jeff Berman and Patrick Burnson daily on logisticsmgmt.com

Berman and Burnson's consistent market engagement offer a running narrative of key logistics developments to give shippers keener insight into the market. They go about this work the only way you can; they dig for leads, they pick up phones, and nurture trustworthy sources. It's old-fashioned newsroom reporting delivered to readers through all of today's digital means.

The *LM* edit team is excited to be exhibiting Berman and Burnson's insider insight to our print audience, especially at a time when so many business-to-business news and information sources cut and paste news releases and call them "content." The *LM* staff will never cut corners in the editorial it delivers. In fact, we pledge to continue to help shippers understand the market by putting in a good, honest day's reporting.

Michael A. Levans, Group Editorial Director
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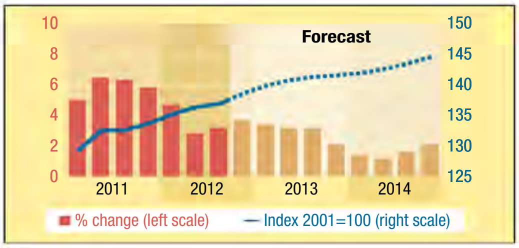
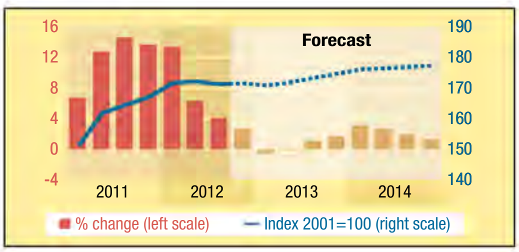


% CHANGE VS.:	1 month ago	6 mos. ago	1 yr. ago
General freight - local	3.2	2.9	4.2
TL	-1.0	-0.3	3.0
LTL	0.9	4.2	6.6
Tanker & other specialized freight	-1.3	-0.4	0.6

Our extended outlook for inflation in trucking is clearing up. After peaking at a 6.5% same-quarter-year-ago price hike in the second quarter of 2011, price escalation continued, though at a slower, but still steady pace. By the final quarter of 2012, we estimate trucking prices increased 3.7% from year-ago. The new forecast calls for same-quarter-year-ago increases of 2.1% in the final quarters of both 2013 and 2014. This all works out to an average annual price increase of 3.6% in 2012, 3.0% in 2013, and 1.6% in 2014. Upside risks to higher inflation rates, however, remain substantial. Any resurgence of political instability in the Middle East can quickly result in truckers tacking on new fuel surcharges.

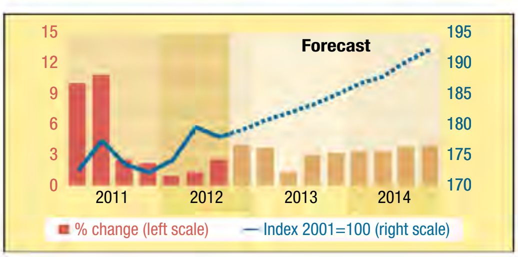
Air



% CHANGE VS.:	1 month ago	6 mos. ago	1 yr. ago
General freight - local	-0.1	-0.3	4.0
Air freight on chartered flights	1.6	2.8	9.2
Domestic air courier	0.4	0.0	7.0
International air courier	0.4	-0.4	5.4

Latest surveys of U.S. airliners showed mixed inflation data. Prices for flying freight and mail on scheduled flights inched down 0.1% from month-ago, but increased 4% from same-month-year-ago. Nonscheduled, airfreight charter companies flying domestic routes increased their prices 3.4% from month-ago and 14.2% from same-month-year-ago, while those flying international routes dropped prices by 2.3% and 0.8% over the same time periods. Our price forecast for U.S. airliners hauling freight in the belly of scheduled flights calls for an average annual increase of 0.6% in 2013 and 2.3% in 2014. That's a relief following the 12.1% and 6.5% annual price increases set in 2011 and 2012, respectively.

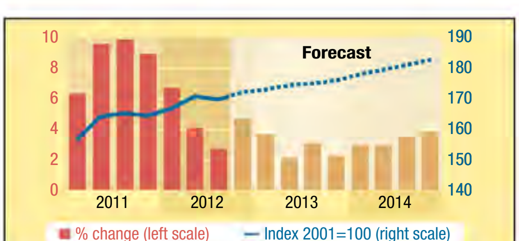
Water



% CHANGE VS.:	1 month ago	6 mos. ago	1 yr. ago
Deep sea freight	0.3	-1.8	2.0
Coastal & intercoastal freight	0.1	-1.1	5.2
Great Lakes/St. Lawrence Seaway	-0.3	-0.2	5.6
Inland water freight	2.6	2.0	3.2

In the U.S.-owned water transport market, the inland water freight transportation category pushed the biggest price hike, up 2.6% from month-ago. Quarterly price changes compared to year-ago, however, show a calming trend as inland waterway prices ebbed from a peak of 14.1% in the second quarter of 2011 to 11.7% in the final quarter of 2011, and then slowed more quickly to 4.1% in the second quarter of 2012. By the final quarter of 2012, we estimate inland waterway prices will have increased only 1.5%. Average prices for inland waterway service are forecast to grow 1.6% in 2013 and 3.2% in 2014. Prices for all U.S. water transportation services will increase 2.8% in 2013 and will rise 3.6% in 2014.

Rail



% CHANGE VS.:	1 month ago	6 mos. ago	1 yr. ago
Rail freight	0.1	1.2	1.2
Intermodal	-0.2	0.2	3.2
Carload	0.8	0.2	5.3

The railroad industry displayed diverging data in the latest transaction price surveys. Intermodal rail operators reported a 0.2% price cut. Average transaction prices reported by carload rail, meanwhile, increased 0.8% on the heels of a 1.3% price hike in October. Both intermodal and carload rail operators have been showing they have the market power to continue pushing prices up, albeit not as high as the peak 10% same-quarter-year-ago price hike that we saw in the third quarter of 2011. After average annual price increases of 8.7% in 2011 and an estimated 4.5% gain in 2012, we forecast the rail industry's average prices will increase 2.8% in 2013, to be followed by another 3.3% annual price hike in 2014.

Tentative agreement reached in POLA/POLB work stoppage

Had the strike continued, industry experts project it could have cost the U.S. economy roughly $1 billion per day.

By Jeff Berman, Group News Editor

LOS ANGELES/LONG BEACH, CALIF.— Soon after federal mediators were brought in to help reach an agreement between the ports of Los Angeles (POLA) and Long Beach (POLB) and the International Longshore and Warehouse Union(ILWU) Local 63 Office Clerical Unit (OCU), the eight-day strike came to an end in the form of an agreement, which was ratified, according to industry sources.

"I would like to thank both the employers and the union for returning to the bargaining table in earnest… working feverishly to reach a new deal," said Los Angeles Mayor Antonio Villaraigosa."

"The result is a contract amenable to both sides and the return to work during this holiday season for thousands of men and women who are vital to keeping our port running around the clock."

The *Los Angeles Times* reported that the strike commenced on November 27, when the 80-member OCU expressed frustration regarding shipping line employers outsourcing jobs. According to the report, the OCU had the support of 10,000 regional ILWU members, who in turn honored the picket line and did not work.

The report added that it centered on the claim by the union that employers have steadily outsourced jobs through attrition and have transferred work from higher-paid union members to lower-paid employees in other states and countries.

While details of the agreement were limited, Steve Berry, lead negotiator for the Los Angeles and Long Beach Harbor Employers Association, said in the report that there will be "no outsourcing under this contract" and that the package included unspecified wage and pension increases and a "no layoff" clause that would go into effect once ratified.

According to the report, the contract will last for six years, is retroactive to June 30, 2010, and will be set to expire on June 30, 2016.

The impact of the labor stoppage

The impact of the labor stoppage was significant, with roughly 20 container vessels idled as a result and more than 20 vessels either anchored at POLA and POLB or diverted.

was significant, with roughly 20 container ships idled as a result and more than 20 vessels either anchored at POLA and POLB or diverted to Oakland, Panama, and Ensenada, Mexico. Along with the idled or diverted vessels, each port had several container operations that were not in operation during the duration of the labor stoppage. And the OCU had picket lines at 10 of the 14 terminals at POLA and POLB.

In the days leading up to this tentative agreement, the pressure had been mounting for the parties to come to an agreement. The National Industrial Transportation League (NITL) and dozens of other shipper groups and transportation and logistics concerns penned a letter to President Obama calling for the White House to quickly engage in the dispute to end the work stoppage at the ports and aid in negotiations.

The groups explained that if there was no imminent resolution there could be significant consequences, including: manufacturers requiring parts for their production lines to have to suspend operations; exporters failing to meet delivery times for Far East customers; retailers being unable to get goods to store shelves in a timely fashion; and importers, wholesalers, and U.S. consumer brands having to face order cancellations if delivery dates could not be met.

Had the strike continued, industry experts said it could have cost the U.S. economy roughly $1 billion per day, as was the case with the 10-day West Coast port strike in 2002. According to industry estimates, POLA and POLB cumulatively handle more than 40 percent of U.S. import cargo per day.

However, as the strike went on, the consequences and impacts subsequently increased, said Paul Bingham, economics practice leader in the transportation division at engineering firm CDM Smith.

"A draw down of small inventory buffer stocks or slack built into shipment delivery time estimates were being used up with less and less flexibility remaining in the supply chains that were affected," said Bingham.

The increasing impacts, added Bingham, would have likely continued to mount for some time if the disruption had gone on.

"The marginal increase in impacts eventually started to diminish as shippers, carriers, and consumers adjusted to temporary accommodation in the form of diversion to other ports, individual shipment diversions, or diversions to other vessel services—even air cargo," he said.

But with a tentative agreement in hand, Bingham said that he expects that "there will be some rebound in economic activity, where delayed cargo is finally delivered and overtime is earned by workers catching up with the resulting temporary surge in cargo handling."

TRUCKING SAFETY

New Trucking Alliance looking to influence Washington trucking safety initiatives

WASHINGTON, D.C.—The newest truck safety group in Washington is formally called The Alliance for Driver Safety & Security, but informally goes simply by "Trucking Alliance." The reason for that is simple: "That's what we found people on Capitol Hill were calling us," spokesman Bill Vickery says. "Instead of fighting it, we're running with it."

And running they are. The group is small—just eight members—but influential. It includes four of the top 10 largest truckload carriers—J.B. Hunt, Schneider National, U.S. Xpress, and Knight Transportation—that are known for their innovative approaches to technology, safety, and transportation.

The group also includes Maverick Transportation headed by Steve Williams, a former chairman of the American Trucking Associations (ATA) and one of the most progressive minds in trucking. The other members are Massachusetts-based Boyle Transportation, Louisiana-based Dupre Logistics, and Fikes Truck Line of Arkansas.

What these companies have in common is a progressive attitude toward safety. Its first success was getting Congress to include language requiring electronic on-board recorders (EOBRs) in new trucks. That legislation calls for EOBRs to be installed on new trucks, probably beginning in the 2016 model year.

"It's a very Spartan alliance and we designed it that way," said Lane Kidd, one of the group's senior advisors and president of the Arkansas Trucking Associations—one of the most influential state associations that make up the ATA.

Vickery likened the group's approach

"We maximized every ounce of political capital we had in our jug to equal the clout of the other associations and big law firms that lobby Washington on a regular basis."

—Bill Vickery, spokesman, The Alliance for Driver Safety & Security

to a football team that has just five plays in its game plan—but runs them extremely well. "We're so nimble that we make decisions very quickly," he said. "We build momentum quickly as we move the ball down the field."

Other "plays" in the group's game plan are requiring a drug and alcohol testing information clearing house so that potential employers can screen drivers relatively quickly and cheaply; ability to use hair and follicle testing as a substitute for urine tests that can be easily masked during drug tests; an increase in the minimum insurance required by a trucking company; finding alternative methods to determine a carrier's safety fitness rating; and mandatory use of speed governors that would limit truck speeds to 68 mph or so.

Vickery said that the group would use the same nimble, focused approach it used to get EOBRs mandated in trying to get Congress to pass reforms on these new issues. "We took our members and used their political clout and got in the boat together," he said. "Tactically as we're moving forward, we're constantly updating the board. We maximized every ounce of political capital we had in our jug to equal the clout of the other associations and big law firms that lobby Washington on a regular basis."

Toward that end, the group recently named Washington veteran Callie Hoyt as its manager of governmental affairs. Hoyt was previously safety and policy coordinator for the Truckload Carriers Association (TCA) where she was responsible for reviewing federal regulatory rulemakings and served as a liaison to the organization's senior staff and policy committees. She also has served internships for Reps. John Mica, R-Fla., and Cynthia Lummis, R-Wyo.

Kidd is quick to note that none of the Trucking Alliance's trucking executives is a registered lobbyist. He added that the group is not in competition with the 3,000-member ATA. Rather, he said, it's designed to be a nimble, quick-thinking, quick-acting, *ad hoc* group that can get things done much more quickly than the venerable ATA.

"We're all about trying to be effective for these trucking companies with a very specific trucking agenda," Kidd said.

Kidd did acknowledge that the group was started out of some frustration of trucking executives on the slow pace ATA was taking on the EOBR issue.

—John D. Schulz, Contributing Editor

Newsroom Notes

by Jeff Berman

Jeff Berman is Group News Editor for the Supply Chain Group publications. If you want to contact Jeff with a news tip or idea, please send an e-mail to jberman@peerlessmedia.com.

"Fiscal cliff" deal reached, but supply chain challenges mount

I WAS ORIGINALLY GOING TO USE a headline along these lines for this inaugural column: "New Year, but same old problems."

But with Congress waiting until just past January 1 to hammer out a deal for the so-called "fiscal cliff," there is at least one less problem to worry about, for now anyhow.

Financial constraints and limitations are not new by any stretch and are, of course, a fact of life in logistics and supply chain management. So, to say that taxes are not going up in most cases as a result of Washington lawmakers actually passing something of significance should not be understated.

Is this deal perfect, no? But as many pundits and politicians have stressed, no deal would have clearly been the worst deal of all.

From September on, the drumbeat for a fiscal cliff resolution became louder and louder. At various transportation industry conferences, carrier executives, shippers, Wall Street analysts, and lobbyists stressed that something had to get done. While the ink is still drying on the legislation, how things play out from here remains to be seen.

I looked up a previous *Logistics Management* news article discussing what might transpire should a deal *not* be reached, and that outlook was decidedly bleak. One prevalent theme was that if nothing is done, then nothing good could come out of it for supply chains.

"We're not looking forward to the domino effect that would happen if this kicks in," said National Industrial Transportation League President Bruce Carlton in November. "It's going to be disruptive. How do you plan for it? These types of cuts have the potential to negatively affect a lot of things."

NITL leadership stressed that this was directly related to logistics and transportation stakeholders getting the services they need in order to continue doing what they do, or U.S. commerce would be affected and the costs for operating businesses and supply chains would be hindered—not to mention the potential impact on the mindset of the U.S. consumer.

As you can well imagine, getting the fiscal cliff threat resolved so early in 2013 was welcome news to the National Retail Federation (NRF). "If our nation had been allowed to go over the cliff, the consequences would have been devastating for businesses and consumers alike," said NRF President and CEO Matthew Shay.

"With the economy still recovering, taking hundreds of billions of dollars out of consumers' hands was a risk we could not afford to take. This agreement might not be seen as perfect by everyone, but it gives American consumers and businesses the certainty they need to put worries over this issue behind them and get on with the business of growing our economy and creating jobs," added Shay.

> **With the economy still recovering, taking hundreds of billions of dollars out of consumers' hands was a risk we could not afford to take. This agreement might not be seen as perfect by everyone, but it gives American consumers and businesses the certainty they need to put worries over this issue behind them.**
>
> —Matthew Shay, NRF President and CEO

Aside from a deal being signed off on, one thing for certain is that our economy still has a long way to go before we can say the recovery has been successful.

We saw good but not great holiday season retail sales numbers, which felt the impact of Hurricane Sandy, and now we're seeing strength in housing numbers—which will eventually eat into the nation's shrinking truck capacity.

Now throw in the ever-twisting regulatory roadmap, fluctuating energy prices, and challenges like meeting the demands of the "e-commerce driven supply chain" and it is clear that 2013 will be yet another interesting year for logistics and supply chain operations. ☐

Pacific Rim Report

By Patrick Burnson

Patrick Burnson is Executive Editor of *Logistics Management*. If you want to contact Patrick with feedback or a story idea, please send an e-mail to pburnson@peerlessmedia.com.

China bounces back, while Oakland and Seattle step up

ACROSS THE PACIFIC, indications are that China's economy is once again on an upward swing. China, together with Hong Kong and Macao, currently accounts for 13.4 percent of California's merchandise export trade.

But weakening economic conditions in several key foreign markets, and outright recessions in others, led to mixed results, for California exporters late last year, according to an analysis by Beacon Economics.

On a decidedly more positive note for California's economy, exports of manufactured and non-manufactured goods were up in real as well as nominal terms.

The latest forecast from the Organization for Economic Cooperation and Development projects Canada's economy will have grown by 1.5 percent in the final three months of 2012, and will advance only 1.8 percent in 2013. That projection is half a point below the Bank of Canada's official forecast. Canada accounts for nearly 11 percent of California's export trade.

The outlook is more optimistic south of the border where the new Mexican government is forecasting gross domestic product growth of 3.5 percent in 2013. Mexico is benefiting from a surge in foreign direct investment, especially in the automotive sector.

New day in Oakland

Meanwhile, the Port of Oakland, the West Coast's largest outbound ocean cargo gateway, is taking comprehensive and decisive action that demonstrates a new era of transparency and accountability. Specifically, the port is:

• Releasing the Port Purchasing Card Audit dated July 2012 as originally presented to the Board.

• Releasing the investigative report conducted by independent outside counsel, Arnold & Porter, which looked at specific improper expenditures and the Port's overall expense policies.

• Moving forward on a comprehensive plan to prevent improper expenditures and strengthen the port's culture of compliance.

In addition, the port announced that James Kwon agreed to retire as Maritime Director last December. "It's a new day at the port," acknowledges Board President Gilda Gonzales. "While the vast majority of what was uncovered was an organization of people doing their jobs ethically and responsibly, we also found out-dated policies, a few irresponsible actions, and a few isolated cases of improper expenditures."

Seattle making moves

Change is in the air at The Port of Seattle as well. Last December, the port's commission approved a 25-year plan designed to help create 100,000 new jobs in the region, spur economic growth, and reduce the port's environmental footprint.

The "Century Agenda" program sets four strategies for the port to pursue with its business partners and stakeholders, and four regional initiatives that identify near-term opportunities for regional coalitions.

"The program builds on the 100-plus year role the port has played in creating economic growth for the Puget Sound region and the state of Washington," says commissioner John Creighton. Among the strategies and objectives, the Century Agenda calls for:

> **Change is in the air at The Port of Seattle as well. Last December, the port's commission approved a 25-year plan designed to help create 100,000 new jobs in the region, spur economic growth, and reduce the port's environmental footprint.**

• Positioning the Puget Sound region as an international logistics hub, in part by increasing annual container volume to more than 3.5 million units and tripling the value of outbound cargo to more than $50 billion.

• Ensuring Seattle operates "green" by implementing a multi-faceted approach to reduce energy use, air pollutants, carbon emissions and storm water runoff, such as by cutting air pollutants and carbon emissions from all port operations by 50 percent from 2005 levels.

• Strengthening access to global markets and supply chains for Pacific Northwest businesses.

• Establishing an educational consortium to serve the maritime industry's needs for workforce development, applied research and business growth.

• Fostering a coordinated effort between Puget Sound ports to support Washington state's efforts to establish a healthier region. ☐

Moore on Pricing

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The pallet classification debate

Editors Note: *Peter Moore's November column titled* What's the CCSB doing now? *(logisticsmgmt.com/moorenov) stirred quite a bit of reaction from carriers, analysts, as well the Commodity Classification Standards Board (CCSB). This month* Logistics Management *offers Moore's clarification to points made in that column as well as a response from Joel Ringer, chairman of the CCSB. Due to length constraints, we'll offer the beginning of each response here and continue both responses, in full, online. Links to both responses are at the bottom of each column below.*

Moore offers clarification

IN MY NOVEMBER COLUMN I raised the possibility of carriers beginning to charge for pallets as a unique part of the shipment—as well as the possibility of pallets to be subject to classifications based on weight and density that reflected higher than the traditional Class 70 for a standard 40-inch x 48-inch pallet as a part of a shipment.

I note that Item 640, the new classification table in Item 150390 for pallets and the recent removal of economic regulation and Sec. 5a immunity by the federal government, allow carriers to do what I have suggested. I further stated that Item 170 allows the carrier to charge the highest classification available where the density for an item is not specifically described on the Bill of Lading. Thus, I suggested shippers should begin describing the pallet to protect their company.

Carriers and the Commodity Classification Standards Board (CCSB) have stated that I am absolutely wrong, and it was not their intention to start billing shippers for pallets as a separate item subject to a pallet classification table—and that they do not require shippers to list pallets as a separate item on the Bill of Lading. They state that this is reflected in Item 640 that allows for mixed pallets to have the pallet rated at the lowest class of the freight on that pallet.

My concern, apparently not clearly stated, is that the application of item 150390 is not expressly limited to empty pallets.

As a long time shipper and owner of a third party logistics company, I remain skeptical that with a new classification for pallets in place it will never be used by a carrier on "loaded" pallets, particularly one in financial straits, to retroactively invoice a shipper with "corrected" invoices. For this reason I felt shippers need to fully describe the pallet on the Bill of Lading in self-defense.

In an effort to get clarity about this issue, I turned to William Pugh Esq., former executive director of the National Motor Freight Traffic Association publisher of the National Motor Freight Classification (NMFC)...

To read the full clarification, go to ***logisticsmgmt.com/MoorePallet***

CCSB responds to Moore's clarification

THE COMMODITY CLASSIFICATION STANDARDS BOARD (CCSB) has received a number of inquiries from users of the National Motor Freight Classification (NMFC) regarding Peter Moore's column in the November 2012 issue of *Logistics Management (What's the CCSB doing now?)*. These inquiries relate to the suggestion by Mr. Moore that a recent CCSB action to reclassify pallets has resulted in a far-reaching change to the classification of palletized freight and the information shippers of palletized freight must show on bills of lading.

Subject 10 of CCSB Docket 2012-3 was a proposal to amend NMFC item 150390, which names "Pallets; Platforms; Racks, shipping, NOI; or Skids; for lift trucks, steel or wood," by assigning classes based on density. The CCSB's action on this subject changed the classes in item 150390, but did not change the articles named in the item, which date back almost 45 years. It also did not change the manner in which palletized freight is classified, or the NMFC rules governing palletized freight.

Item 150390 is listed in the Articles Section of the NMFC, meaning that it applies on steel or wood pallets, shipping racks, etc., when they are the articles, i.e. the commodities, being shipped. In other words, item 150390 applies on shipments of empty—for lack of a better word—steel or wood pallets or shipping racks. This item does not apply, nor has it ever applied, on shipments of other goods tendered on pallets.

In this regard, the class applicable to a given shipment is determined by the article being shipped and the gross weight of the article as tendered for shipment is subject to that class. If the article is packaged in a box, the weight of the box is included in the gross weight—the box is not classified separately.

Similarly, if the article is secured on a pallet, the weight of the pallet is included in the gross weight—the pallet is not classified separately. On this point, NMFC Item (Rule) 995, Sec. 1, makes it clear that "A shipping carrier, container or package, or pallet, platform...

To read the full response, go to ***logisticsmgmt.com/CCSBPallet***

Pearson on Excellence

Mark Pearson is the managing director of the Accenture's Supply Chain Management practice. He has worked in supply chain for more than 20 years and has extensive international experience, particularly in Europe, Asia, and Russia. Based in Munich, Mark can be reached at mark.h.pearson@accenture.com

Dynamic Operations: The flexible future of supply chain management

DYNAMIC OPERATIONS—SUPPLY CHAIN NETWORKS that respond quickly and smoothly to changing business conditions—sounds like something every company should desire. Who wouldn't want a supply chain whose processes, people, capital assets, technology, and data are always positioned to surmount the primary challenges of the day?

The reality, however, is that few organizations are able to change as fast as the world around them; and a primary reason is inflexible supply chains. Due partly to their ceaseless quest for integration, many companies are currently burdened by arthritic supply chains—unable to flex without pain. And in this era of "permanent volatility"—that includes endless onslaughts of political, environmental, commercial, technological, and financial turmoil—rigid supply chains are increasingly untenable. The antidote is dynamic operations.

In this five-part series, we examine dynamic operations' core components—capabilities that work together to give companies the speed and flexibility they need to accommodate supply chain disruptions and anomalies. The core benefits are twofold: minimizing the downsides of disruptive events and capturing the opportunities that those events often engender.

The dynamic operations concept

Think of dynamic operations as groups or nodes of supply chain networks that, in response to changing circumstances, reorient themselves without upending a company's desired cost/service balance. When a disruptive situation arises (supply interruptions, financial chaos, market shifts), processes at any node on the supply chain can be modified quickly.

A loose analogy might be a guitar whose pegs allow the musician to design custom tunings that make a difficult song easier to play. With a guitar, the timbre of one or many strings can be changed. With dynamic operations, a company can do the same thing; effectively retuning its supply chain by leveraging the flexibility it has built in to every node.

Consider the actual case of a consumer goods manufacturer with 40 production facilities worldwide. The company's markets and product lines were changing rapidly and company executives knew they needed to rationalize manufacturing. However, they also recognized that fewer plants could mean higher risk—compromised response and lead times and potentially higher per-plant operating expenses.

The solution was to create a more dynamic supply chain: fewer facilities (reduced from 40 to 23), but greater manufacturing breadth at each plant. To make this happen, the company used advanced analytics, scenario planning, and insightful network design to create a unique "tradeoff curve."

"With a guitar, the timbre of one or many strings can be changed. With dynamic operations, a company can do the same thing; effectively retuning its supply chain by leveraging the flexibility it has built in to every node.

Via the curve, the company was able to determine the precise cost of adding relative levels of flexibility and that, by raising per-plant investments only slightly, it could increase supply-chain-wide resilience significantly and give each plant more ability to produce the products and quantities dictated by market conditions at any given moment. Basically, the organization got a lot more bang for only a few more bucks.

Dynamic operations components

Four distinctive capabilities work together to give companies the dynamic operations they need to rapidly identify and accommodate an endless stream of supply chain disruptions and anomalies:

Insight to action: sensing, capturing and analyzing external and internal data and turning it into usable business intelligence. In effect, companies use information to improve their ability to react swiftly to both threats and opportunities—buffering risk while exploiting risk's upside.

Adaptable structure: creating products, processes, and systems that are easily modified in response to changing conditions. The best and clearest example may be flexible manufacturing: the ability to respond quickly to currency fluctuations, supply disruptions, and sudden demand shifts by altering manufacturing volumes, mixes, and venues.

The mantra is "flexible resource allocation," made possible by centralized operations, low-touch (highly automated) processes, cross-trained personnel, solid supplier contingency plans, and an elastic infrastructure that emphasizes outsourcing, vendor-managed inventories, and rent-rather-than-buy philosophies.

Flexible innovation: making design and development processes less rigid by reducing changeover times; increasing interchangeability; designing products that embrace multi-channel networks and technology; and structuring ways to smoothly and rapidly rebalance order management, production, and warehousing in response to shifting conditions.

Agile execution: rapidly adjusting supply chain actions by dialing capacity up and down, improving collaboration, formulating supplier contingency plans, and implementing advanced technology such as predictive analytics. The mantra is "flexible resource allocation," made possible by centralized operations, low-touch (highly automated) processes, cross-trained personnel, solid supplier contingency plans, and an elastic infrastructure that emphasizes outsourcing, vendor-managed inventories, and rent-rather-than-buy philosophies.

Details on each of these capabilities, along with illustrative case studies, will appear in our February through May columns in *Logistics Management*. □

Andreoli on Oil+Fuel

Derik Andreoli, Ph.D.c. is the Senior Analyst at Mercator International, LLC. He welcomes any comments or questions, and can be contacted at dandreoli@mercatorintl.com.

The top oil and fuel stories of the past year

BY FAR, THE TOP STORY OF 2012 was that world oil markets tightened throughout the year despite slow growth in advanced economies and slower than expected growth in emerging economies. While the media—whose attention was focused on the shale revolution—largely ignored the tightening of the world oil market, it was and continues to be the driving force underlying persistently high fuel prices.

The best barometer of tightness in the world oil market is surplus oil production capacity, which is the amount of oil that could be produced if all taps were running at full volume. Surplus capacity has been declining since 2010, at which point it was equivalent to 5 percent of total consumption. By November 2012, which is the most recent data point available, surplus capacity had declined to just over 2 percent.

In absolute terms, 2 percent equates to less than 2 million barrels per day. With surplus production capacity so low, an uprising like that which occurred in Libya or another bad hurricane in the Gulf of Mexico could potentially knock surplus capacity toward zero. As a consequence of persistently low surplus capacity, a significant risk premium was priced into the market.

Runner Up: The shale oil revolution and energy independence

A close runner up to the top story was the news that on the back of growing shale oil production and declining consumption, the U.S. is on track to be energy independent in the next decade or so.

A closer look at these trends in domestic production and consumption, however, indicates that though the situation has improved and will continue to improve, forecasts of energy independence are overly optimistic.

Second Runner Up: Diesel exports

Another story that was underreported, if not entirely missed by the media, is the fact that diesel exports climbed to an all-time high and remained at this level.

Historically, the U.S. has been a net diesel importer. Between 1998 and 2008, U.S. net imports of diesel averaged between 3 percent and 5 percent of domestic diesel consumption. In late 2007, the U.S. became a net exporter, and by the end of 2011, net diesel exports climbed to nearly 1 million barrels per day (mbd).

In terms relative to domestic diesel consumption, for every four gallons of diesel consumed domestically one gallon was exported in 2012. If you were wondering why diesel prices remained high while gasoline prices eased, this is a big part of the answer. The other big part is that corn ethanol is a substitute that is blended with gasoline.

Third Runner Up: Brent-WTI price spread

As shale oil production in the Midwest ramped up, a "relative glut" emerged at the delivery point in Cushing, Okla., which is also where the West Texas Intermediate crude stream (WTI) is delivered. In 2011, this relative glut pushed the price spread between WTI and Brent blend, a similar crude stream that's delivered from the North Sea to Europe. The spread grew from just a dollar or two per barrel to over $25 in September of that year.

"While the media largely ignored the tightening of the world oil market, it was and continues to be the driving force underlying persistently high fuel prices.

It seemed clear to me that such a wide price differential would eventually be solved through physical arbitrage where a third party that is able to figure out the logistics side of the equation and align the appropriate capital and equipment would buy cheap oil in the U.S. and sell it as expensive oil to some other market. So, as the price differential yawned, as I forecasted in 2012, it would converge.

By January 2012, the differential had declined to just over $10 per barrel for a variety of reasons, and Enbridge announced that, in the summer of 2012, they would reverse the flow of the Seaway Pipeline that historically carried crude from Houston to Cushing.

It was understood by many analysts, including myself, that this reversal would significantly alleviate the glut and therefore the price differential. But we were wrong.

Though the price differential rose from January through March, the differential dropped more than 30 percent by June.

It soon became clear, however, that the pipeline that carries 150,000 barrels per day from Cushing to Houston, did not have enough capacity to alleviate the glut because production in North Dakota continued to climb exponentially. Between June and November, the spread increased from just over $12 per barrel to just over $22 per barrel.

U.S. oil production

Domestic liquid petroleum production surged in 2012, rising by 0.65 mbd. In relative terms, this increase from 10.8 mbd to 11.4 mbd pencils out to a domestic growth rate of 6 percent. Of course, you don't need an analyst to tell you that liquids production surged, but there is more to this story than is commonly reported.

The ratio of crude oil production to total liquids production has been steadily declining, while the biofuels and natural gas liquids component has been increasing.

From a transportation perspective this is problematic because the fractions that are growing as a percentage of the total are not diesel substitutes. From an aggregate perspective, alternative fuel vehicles (e.g. LNG) do not comprise a significant portion of the total, while accelerated adoption of these technologies will not have any meaningful impact of the total.

U.S. oil consumption

In January 2008, domestic consumption was over 20.2 mbd. As of October 2012, consumption was just over 18.8 mbd. While consumption declined by roughly 7 percent over this period, nearly the entire decline occurred as a result of the great recession that drove down consumption of everything including oil and fuel.

Since the first quarter of 2009, consumption has essentially been flat. The latest available data indicates that 18.84 mbd of oil were consumed in October 2012. By comparison, 18.80 mbd were consumed in October 2009. That equates to a compound annual growth rate of just 0.06 percent, which is a far cry from the average decline rate of 7percent which has been employed by the more optimistic energy independence forecasters.

What's ahead in 2013?

On the supply side, domestic oil production is expected to continue to increase, though the pace of increase is likely to slow as production rates from an increasing number of fracked shale oil wells go into decline. Outside the U.S., oil supply depends to a great deal on the politics of two Persian Gulf countries: Iraq and Iran.

Production from Iraq has consistently posted strong growth, and the biggest challenges that the country faces moving forward are rooted in the chaos of that country's domestic politics. While production in Iraq is expected to continue to increase, the output from Iran is expected to stagnate as a consequence of oil sanctions imposed by the West. On the demand side, the U.S. remains the largest single consumer, and as reviewed earlier consumption has been flat.

Looking forward, while domestic petro-efficiency is on the rise, domestic consumption will likely remain flat if the economy continues to grow at a subdued rate. The story is largely the same across Europe. Though European consumption has fallen as Portugal, Italy, Greece, and Spain still struggle with high debt and low productivity, across the whole of Europe demand has been flat.

> **Looking forward, while domestic petro-efficiency is on the rise, domestic consumption will likely remain flat if the economy continues to grow at a subdued rate.**

Looking forward, European demand is likely to remain flat unless the EU can satisfactorily resolve the debt crises, in which case consumption will rise.

Asian demand has risen at a compound annual rate of 9 percent since 1985, but slow economic growth in advanced economies combined with structural changes in the Chinese economy suggest that the rate of growth will slow somewhat over the coming year. Demand among the oil exporters of the world is expected to continue to grow at a robust rate.

In all, uncertainty on both the supply and demand sides of the equation suggests that there is an equal probability of markets tightening or loosening in 2013. In the event that they loosen, it is unlikely that oil prices will drop much below $90. In short, logistics managers will likely be challenged by high and volatile fuel prices, and competitive advantage will be bestowed on those that minimize their exposure to fuel price volatility. □

2013 RATE OUTLOOK

New era of

Our panel forecasts soft spikes across the modes as carriers fine-tune their yield management strategies. In turn, shippers must now focus on collaboration and be more creative than ever if they are to contain costs.

BY **PATRICK BURNSON,** EXECUTIVE EDITOR

While there were few surprises contained in the Institute for Supply Management's (ISM) *December 2012 Semiannual Economic Forecast*, the overall findings suggest improvement in the U.S. that will continue in 2013. According to the nation's purchasing and supply management executives, expectations are for the continuation of the sustained economic recovery that began in mid-2009.

Furthermore, the manufacturing sector is preparing for growth in 2013, with revenues expected to increase in 17 manufacturing industries. The non-manufacturing sector predicts that 14 of its industries will see higher revenues.

Capital expenditures, a major driver in the U.S. economy, are forecasted to increase by 7.6 percent in the manufacturing sector and by 7 percent in the non-manufacturing sector.

"Manufacturing purchasing and supply executives expect to see continued growth in 2013," says Bradley Holcomb, chair of the ISM manufacturing business survey committee. "They are optimistic about their overall business prospects for the first half of 2013, and are even more hopeful about the second half."

Holcomb also notes that shippers may expect a slight hike in transportation costs this year, keeping pace with the overall growth projections in manufacturing and services. Meanwhile, our distinguished 2013 Rate Outlook panel tends to agree with Holcomb's forecast, further advising shippers to monitor macroeconomic trends carefully this year.

Due diligence in this regard, along with firming up carrier partnerships, may mitigate the soft spike in logistics and supply chain costs expected to have an impact on their budgets as we make our way through 2013. Any way our panel slices it, one maxim rings true: Shippers will have to be more creative than ever if they are to contain costs this year.

FUEL: Volatility to continue

Forecasting fuel rates has never been more difficult for the industry overall, maintains panelist Derik Andreoli, Ph.D.c., senior analyst at Mercator International LLC and *Logistics Management*'s popular Oil & Fuel columnist. According to Andreoli, when planning for 2013 energy fluctuations, logistics managers must keep an eye on several global issues.

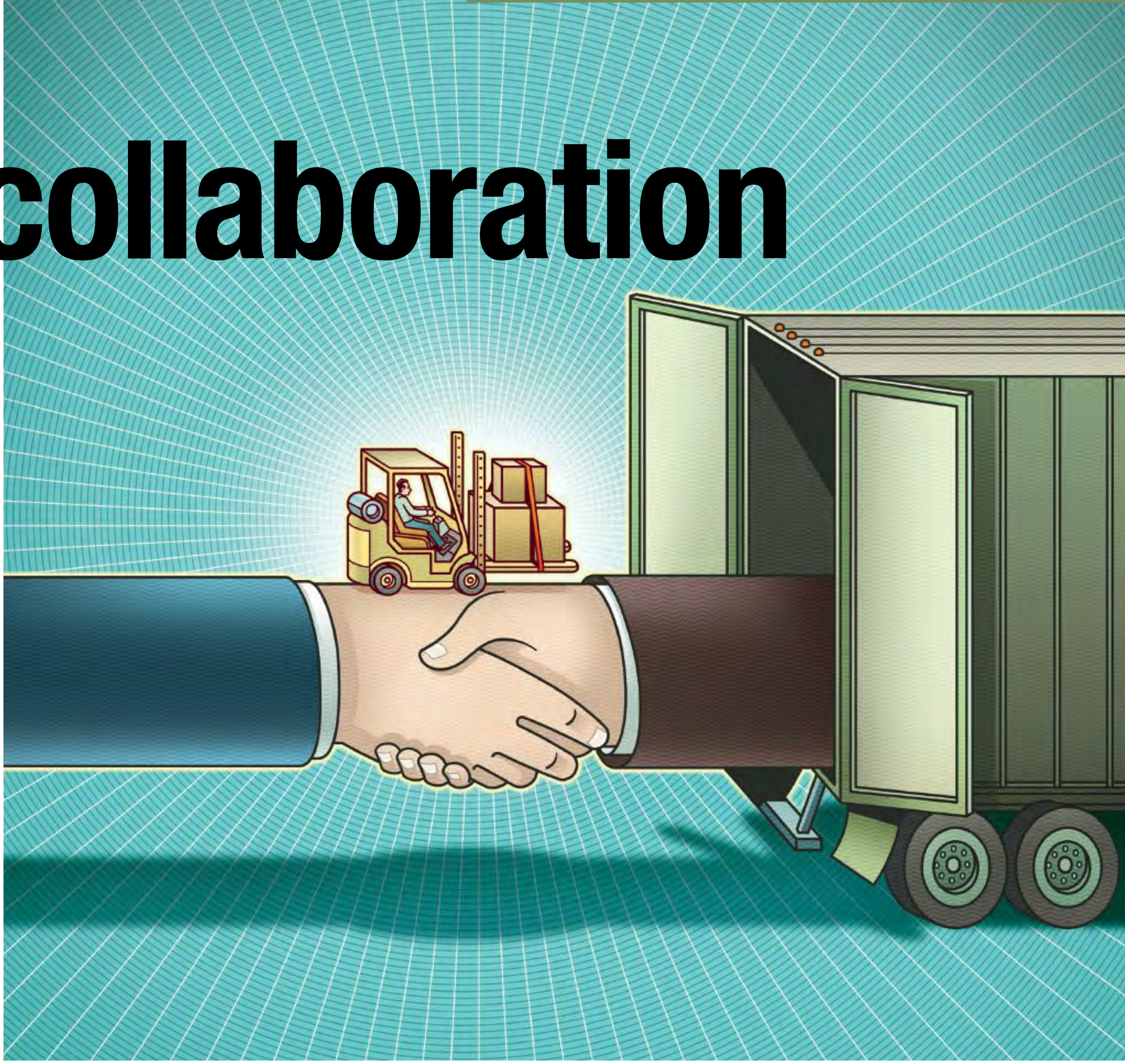
"We need to watch what's going on in Iraq and Iran; wonder if shale gas drilling rates and natural gas production and consumption will remain stable; and ask if drilling rates and production of shale oil will increase even as oil wells disappear," says Andreoli. "These are all questions looming large for shippers this new year."

Lacking a crystal ball, the best anyone can do is evaluate the fundamentals of global supply and global demand, notes Andreoli. For example, if demand grows faster than production capacity then surplus production capacity—the world's buffer against actual supply shortfalls—will be diminished, and prices will rise. Conversely, if production capacity grows faster than demand we should expect some easing in price volatility, though not necessarily price levels.

"Over the last two years, surplus oil production capacity has declined from nearly 5.5 percent of world consumption to a hair over 2 percent," says Andreoli. "In absolute terms, this amounts to only 2 million barrels per day. This means that a disruption in any one of the world's major producers will have a significant impact on prices. And unless surplus capacity recovers, any escalation of political tensions in any of the world's major oil producing regions will introduce a significant risk premium and prices will become increasingly volatile."

Logistics and transportation professionals can begin to reduce their exposure to risk by concentrating on packaging and materials handling, Andreoli advises. "Work with car-

collaboration



PETER HOEY

riers to design an incentive program to reward carriers for increasing fuel efficiency," says Andreoli.

How carriers pack trailers and containers is as important as how shippers pack their boxes, and shipping less air is the goal here as well, he adds. "Outside of packing the trailer, carriers can gain significant fuel savings—close to 10 percent—from switching to single tires, and additional savings can be realized through the installation of aftermarket aerodynamics kits."

TRUCKING: Yield management top of mind

Stifel Nicolaus analyst John Larkin agrees that shippers need to take a look at the big picture and should closely monitor the results of the "fiscal cliff" negotiations and broader economic data reports in early 2013.

"If a rational solution is reached in Washington, chances are that the private sector will be more inclined to hire, invest, and grow at a faster rate than we have witnessed the past couple of years," says Larkin. "A better than expected economic scenario, along with significantly higher freight rates, could then result."

Conversely, adds Larkin, if war breaks out in the Middle East, or if China's growth prospects dim, domestic economic growth could disappoint. In that case, rates could weaken as demand wanes.

"Rates, particularly spot rates, could decline to very attractive levels," says Larkin. "So rather than reviewing a checklist, we think that shippers should remain diligent in their evaluation of the health of the economy. That discipline will best prepare shippers to respond to the changing landscape while lining up sufficient capacity at reasonable market-based prices."

Larkin and other analysts note that trucking rates are closely related to supply and demand in the marketplace. Assuming that the economy continues to grow at an annual rate of 1.5 percent to 2 percent, shippers should expect supply and demand to remain roughly in balance.

"This is the same situation we have experienced for the better part of two years," Larkin says. "Under this scenario, truckers should be able to eke out 1 percent to 2 percent annual increases in raw price in 2013. Carriers may be able to improve on the range by 100 to 200 basis points harnessing a process we like to call 'yield management.'"

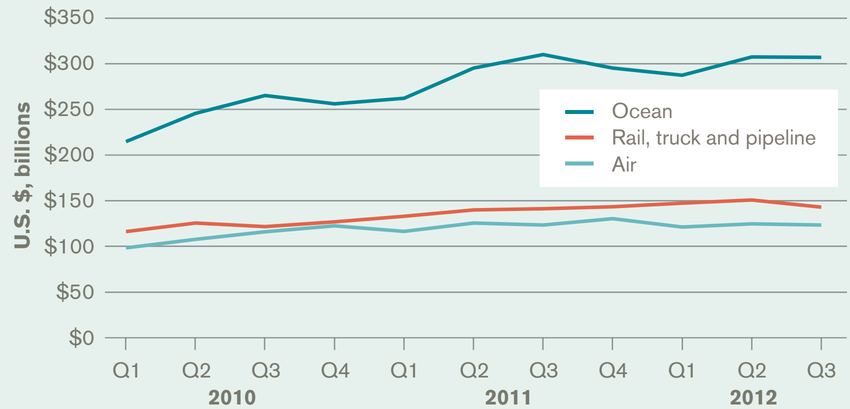
Yield management is nothing more than selecting the highest rated customers and the highest rated freight offered by particular customers. Furthermore, Larkin believes it's possible that the mid-year change to the hours-of-service-related restart rule could effectively eliminate 2 percent to 4 percent of the industry's capacity. This alone could set up a capacity shortage that could drive significant upside to the modest rate increases mentioned above.

"Shippers can help themselves tremendously by working collaboratively with carriers to improve the carriers' equipment utilization," says Larkin. "If a shipper can open his facility for night-time delivery, quickly load and unload trailing equipment, or communicate equipment needs well in advance… carriers will be more inclined to work with the collaborative shipper on price because some of the margin needed by the carrier can be derived from turning the assets and the drivers more quickly."

RAIL/INTERMODAL: Transparency is key

Brooks Bentz, a partner in Accenture's supply chain management practice, says that intermodal shippers can shield themselves from unexpected rate hikes by negotiating contracts for a distribution network rather than by picking lanes.

U.S. imports, by mode of transportation



Source: Zepol

"Shippers really became good at this during the recession," says Bentz, "and they'll continue to share information with one another—even with friendly competitors—if it's of mutual benefit."

Indeed, Bentz argues that the carriers themselves are becoming more transparent in their pricing. "Given that a wide variety of rail and intermodal producers are charged with delivering door-to-door transportation, the challenge has been magnified," he says. "That requires more integration and cooperation among carriers."

Meanwhile, intermodal growth continues to accelerate with the tremendous investments the railroads are making in infrastructure. According to the Intermodal Association of North America (IANA), domestic container volume recorded double-digit growth for the fourth quarter in a row in 2012.

"Every IANA region reflected an increase in domestic containers that were responsible for the majority of total third quarter intermodal gains," says IANA President and CEO Joni Casey.

Volumes were most impressive in the Midwest and the Northeast regions, with each recording nearly a 15 percent uptick. Overall, intermodal volume increased a respectable 3.2 percent during the fourth quarter that exhibited some economic slowdowns.

"The largest overall cause of modest international intermodal volume increases continues to be weak port volume, as many shippers have been unwilling to bring in substantial inventories," says Casey. "Strong domestic container gains have kept overall intermodal volume growth positive, and an anticipated rebound in imports should deliver higher levels of overall intermodal performance in 2013."

Yet to be measured, add analysts, is the impact that the threatened strike on East Coast and Gulf ports may have had on ocean carrier deployments late last year. While labor and management continue to hammer out a deal in this month, carriers may have already imposed a surcharge on shippers for sudden supply chain shifts.

OCEAN: Capacity crunch on horizon?

As always, the freight rate outlook for container shipping will vary by route and by direction and will depend on the length of contracts, says analysts for the London-based consultancy Drewry Supply Chain Advisors.

"Overall, we predict a moderate increase in freight rates in 2013 of 3 percent to 6 percent in average east-west freight rates in 2013," says Philip Damas, Drewry's director. "Contract tenders currently being finalized for calendar 2013 also indicate this type of rate changes."

The fact that rates may rise in a weak market is partly because of the lag time of annual contract rates, he explains. In early 2013, annual contract rates that commenced in early 2012—at a time of a price war between ocean carriers—will expire. Slightly higher rates, adds Damas, will then replace these very low contract rates.

"Shippers who buy shipping capacity on a spot basis or under short-term contracts have been paying significant rate increases since the summer of 2012," says Damas. "In effect, these shippers have already seen price increases from which annual contract shippers have until now been insulated."

The fuel surcharge component of container freight rates will remain high in 2013 in line with the underlying marine fuel price trends. However, the container shipping market remains unstable, Drewry analysts say.

"We note that carriers have been losing money in 2011 and 2012 and are close to the point where they will need to reduce capacity to protect their cash flow," says Damas. "If the situation worsens, we could see a repeat of 2010 when capacity was slashed, freight rates were ratcheted up, and contracts were renegotiated."

So, how do shippers protect themselves? Drewry generally advises them to develop close relationships with core, preferred carriers, and to run detailed professional tenders, instead of trying to capitalize on attractive, short-term price reductions from unfamiliar or "opportunistic" carriers.

"We say this because of the continuing disruption in the market, that could result in the interruption of service, or in sudden freight rate increases, or in unilateral contract terminations," advises Damas. "Just look at the speed at which some small transpacific carriers pulled out of the market, with little or no notice, when rates fell."

AIR CARGO: Rates remain steady

While air cargo volumes crept along at a snail's pace during most of 2012, the year ended without a last minute push for higher-value retail goods to fill space to capacity on cargo planes.

According to Charles "Chuck" Clowdis, managing director of transportation advisory services for IHS Global Insight, this slow growth still reflects rates that have remained stable for most of the past year.

"Even the dockside strikes at seaports last year did not last long enough to push goods from sea to air as inventory carrying stocks may have become threatened," says Clowdis. "It's our feeling that rates will continue to remain at present levels during the first quarter of 2013 and likely remain so unless there is a discernible economic recovery that will include robust consumer spending."

Clowdis predicts that mid-year spending may see a bit of an upturn for airfreight items if new electronic items are released. Meanwhile, he contends that some hope for a recovery exists for this summer.

"Likewise, consumer spending on relatively high value goods could return with a rise in the economy," says Clowdis. "But this scenario is unlikely. Six months into 2013 will find us most likely awaiting a change in the economic situation hopefully coupled with a drop in unemployment."

PARCEL: Still surging

Late last year both FedEx and UPS announced parcel rate hikes, but according to Jerry Hempstead, president of parcel consultancy Hempstead Consulting, increases are "not linear by weight nor are they linear by zone." FedEx also increased many of the most frequently used accessorial service charges such as residential, address correction, delivery area, and extended area surcharges.

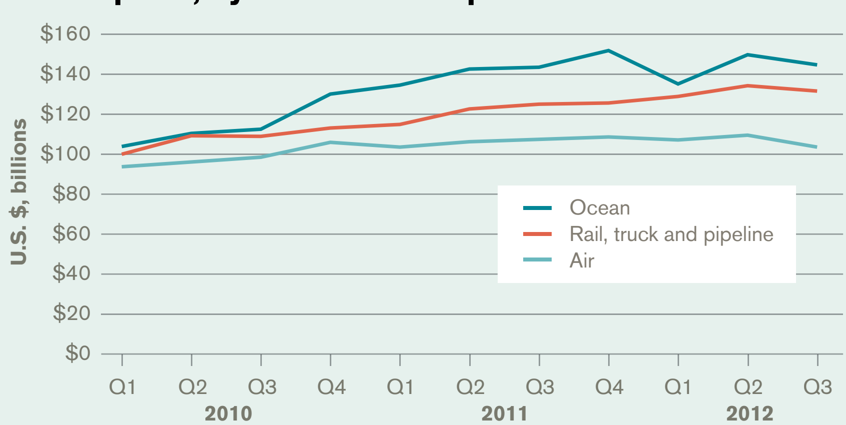
"The great concern to most shippers is the constant increase in 'minimum' charges," says Hempstead. Today the minimum charge for a ground package is $5.49 before the fuel surcharge. That will be increasing to $5.84, a 6.34 percent increase not accounting for the change in the fuel surcharge."

The United States Postal Service, a competitor in the two- to three-day air market also increased rates late last year. "But there is little overall organic package growth going on in the marketplace," says Hempstead. "As a result, they need to continually increase top line revenue by charging more."

So what can shippers do? They can protect themselves by developing a model that reflects buying patterns of services and distribution of packages by zone and weigh. "This is easily accomplished by downloading a shipment history from the carrier Web site," says Hempstead. "Always remember that everything in life is negotiable. If you have grown your business with a carrier this past year then perhaps the carrier should be rewarding you with lower costs in 2013."

—*Patrick Burnson is Executive Editor of* Logistics Management

U.S. exports, by mode of transportation



Source: Zepol

2013 Parcel Express Roundtable: FedEx/UPS duopoly reigns

With the two key players performing at such high levels, pricing gains for shippers looking for alternatives may not exist. Our panel advises shippers to "know their freight" and to watch for services being developed to keep up with e-commerce demands.

BY **JEFF BERMAN,** GROUP NEWS EDITOR

It's not hard to see why even during one the slowest economic recoveries on record that parcel express and ground activity remains ahead of the curve. This is not represented so much in annual volume gains as it is with service quality and the continued reliability that shippers continue to receive through key parcel carriers.

And while this field of carriers remains limited, with the duopoly of FedEx and UPS continuing its reign, it doesn't mean that there are limited opportunities for shippers to expand and leverage how they approach parcel. On the flip side, however, with such an established duopoly serving the majority of the market, pricing gains for shippers looking for alternatives can be a bit challenging.

Joining us this year to put this dynamic market into perspective are Jerry Hempstead, president of Hempstead Consulting; Doug Kahl, executive consultant of parcel for TranzAct Technologies; and David Ross, transportation and logistics director at Stifel Nicolaus.

Over the next few pages, our distinguished panel offers shippers their unique insight into parcel market trends, the future of pricing, and the role the United States Postal Service (USPS) continues to play in the sector. With 2013 already here, the panel advises shippers to be diligent in how their packages are priced and to keep an eye on the innovative services being developed to keep up with challenging e-commerce demands.

***Logistics Management* (*LM*:): How has the parcel market evolved over the past 12 months?**

David Ross: It's one of the bright spots in the sluggish economy, as business-to-consumer sales continue to grow faster than the overall level of shipment volumes.

Doug Kahl: I think 2012 will go down as one of the biggest years of change in recent memory. Who would have picked UPS as a suitor for TNT? And that deal is still not closed, and we sense increasing uncertainty at this moment that it will go through as planned. And don't forget, this past fall FedEx laid out its profit improvement plan that calls for major transformation of the Express division.

In the meantime, the USPS has less than a week of working capital on-hand; and, as hard as they are working at turning around their business, their hands are still tied by a lack of Congressional action.

Jerry Hempstead: I agree with David and Doug, and will quickly add that the parcel market is UPS and FedEx. They dominate the space, and the barrier to entry for another player is so high that there is little opportunity to logically make a case that one should invest to go take the duopoly on.

***LM*: How would you describe the current rate and pricing environment for parcel shippers?**

Hempstead: For years the presence of many players allowed shippers to play the bidding game and this moderated pricing. As a matter of fact, we had pricing declines in the marketplace for the most part from November 1979, when the air cargo business was deregulated, up until 2009 when DHL exited domestic service here in the U.S.

The lack of competitors now has

Daniel Vasconcellos

changed the game so that the two surviving firms of the express wars are racing to see who can raise prices the fastest. We have seen these increases take many forms, not simply in the base rates from which shippers get to take their discount, but in other methods and means such as rules changes, the addition of new accessorial charges, and the addition of zips to the list of delivery area or extended area charges. Sadly, with only two players with the full menu of air and ground services, the shippers are limited in their leverage, and this situation will get worse for shippers as the economy improves.

Kahl: I hear the carriers use phrases such as "yield management," "revenue management," and "quality of revenue" in a very consistent manner. Analysts discuss how they see pricing as being rational with neither carrier looking to use price as a weapon against the other. All-in-all, there is a consistent, measured action being taken by pushing a rate increase or discount decrease button here or turning a surcharge dial there that raises overall parcel costs for shippers.

Ross: Jerry and Doug are both correct. Carrier pricing is rational, so there are no real "deals" out there. Furthermore, the pricing remains complex with surcharges and minimums to factor in. The shippers that can get the best data on their shipments and know what they're shipping and how they're being charged should fare the best at mitigating the increases.

***LM:* Where do you see rates going in 2013 and what's driving them?**

Kahl: We've already seen the 2013 parcel rate increase announcements and know that base rates and additional charges are going up again. Shippers with pricing agreements tied to the published base rates will see increases in the 6 percent to 8 percent range with many key surcharges increasing by at least that much if not more. For those shippers who may have an increase cap, they'll likely still see some inflation of at least a couple points. No one is immune to the consistent, measured action mentioned earlier.

Ross: They're going higher, but it will depend on the customer's mix of freight, as the carriers don't raise rates across all modes, distances, and package weights the same. In general, though, a jump of 2 percent to 3 percent year-over-year is expected. Shippers can still save money by shifting down in service level while not sacrificing much on the actual service in terms of transit time.

***LM:* How are market conditions affecting service, and what role is the slow economic recovery playing?**

Ross: Service continues to improve, and the sputtering economy may actually be good for service quality advancements because the focus is on running the operation better and not as much on expansion and moving more packages.

"Service continues to improve, and the sputtering economy may actually be good for service quality advancements because the focus is on running the operation better and not as much on expansion and moving more packages."

—David Ross, transportation and logistics director, Stifel Nicolaus

Kahl: I'll add that the use of technology by the USPS to enhance tracking as well as the carriers' intercept and reroute options continue to grow. I think this new economy has brought a secular change from express to deferred air or ground service levels with cost of transport-to-value of product shipped becoming a more visible metric to businesses going forward.

Hempstead: We do need to emphasize that service with FedEx and UPS is extraordinarily reliable and consistent. There is no real statistically significant difference between the service performances of these two players versus their published guarantee.

***LM:* Given the financial challenges of the USPS, what possible changes might shippers expect?**

Hempstead: The USPS has been extremely vocal on Capitol Hill asking for flexibility in closing NPCs (Network Processing Centers), closing local post offices that are underutilized, and reducing delivery to five days or less. Should Congress grant the USPS the requested flexibility then the service consequences to the shipper should be intuitive.

The other more logical solution would be to allow the USPS greater flexibility in its pricing and allow the USPS to charge rates that cover its cost. Right now that's not happening, and for a firm that's a monopoly for transactions under one pound its' insanity that they lose the money they do.

Kahl: I agree with Jerry. We really don't know what the impact will be until we see what actions Congress will take. But the news is not all dire, as there are some bright spots for USPS. Flat-rate boxes and Priority Mail provide some great value and reliability to an increasing population of shipments given the other carriers rate increases and absolute minimum charge requirements.

And let's face it: Parcel Select with revenue growth of 27 percent this past year is one of the key drivers of e-commerce. So, whether they are the last mile for a delivery or the first mile of a return, a viable USPS is going to be a requirement for shippers—and all of us as consumers—in the future.

***LM:* What advice do you have for parcel shippers in 2013?**

Ross: Know your freight. Know where it's going and when it needs to get there. Shift modes where it makes sense, and try to negotiate away some of the accessorials that are hurting you the most.

Hempstead: David is spot on. Shippers need to be deep in the details of their shipping activity. There has to be a process to challenge the selection of the correct service levels to satisfy the needs of the recipient without over buying the service levels of the carriers. Every so often, at least quarterly, shippers should challenge the selection of air over guaranteed ground.

Kahl: No matter how well you think you're connected, it's not enough. Talk with your carrier reps, carrier management, challengers as well as incumbents, 3PLs, your peers, and have access to outside experts who can act as a sounding board to help you sort through all the noise. Good luck to anyone who thinks they can go it alone.

***LM:* How much different could the parcel landscape be in five years?**

Kahl: E-commerce growth should continue and lead to organic growth for the parcel carriers, postal, regional carriers, and local courier services. One aspect of e-commerce that I'm hearing too many stories about is theft and the related claims during the holiday season that will need to be addressed in a cost effective manner. We'll also be watching what Congress does with the USPS as well as international commerce and how carriers facilitate efficient global trade management.

Ross: We don't think it will be too different, as it should continue to be dominated in the U.S. by FedEx and UPS. We don't see the USPS going away, and we don't see DHL coming back into the U.S. domestic market. They will, however, remain strong in international services.

Hempstead: The barrier to entry into the parcel world is now so high that I just can't imagine how there would be a third player. There is the lingering question regarding the USPS and what it may look like in five years. This can profoundly affect UPS and FedEx because of the trends stated above. If the USPS is not ready, willing, or able to provide economical last mile delivery at least five days a week to these players then the cost of residential delivery is going to be extraordinarily higher for the shipper. These costs will some way be passed onto the buyer.

Jeff Berman is Group News Editor for the Supply Chain Group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Research reveals that multiple factors including volatile fuel prices and the oncoming capacity crunch are finally pushing adoption numbers up in the transportation management systems (TMS) space.

BY **BRIDGET MCCREA**, CONTRIBUTING EDITOR

Critical factors such as a gradually improving national economy, shippers' increased desire for supply chain optimization and visibility, and continual innovation on the part of software vendors all came together to drive growth in the transportation management systems (TMS) market in 2012.

According to recent Peerless Research Group (PRG) surveys and feedback from top software analysts, expansion is expected to continue this year as more shippers invest in both on-premise and cloud-based TMS or upgrades for their existing technology.

According to *Logistics Management*'s (*LM*) Annual Software Users Survey conducted by PRG, 37 percent of companies were using TMS in 2012, up from 32 percent the prior year. Twenty-five percent of respondents say they plan to buy or upgrade—steady from 2011's numbers—and a net 50 percent were either using or planning to buy a TMS. From their software investments, shippers were looking for routing and scheduling, routing and rating, shipment consolidation, carrier selection, and load tendering capabilities.

Steve Banker, director of supply chain solutions for analyst firm ARC Advisory Group, says his firm's most recent research (released in 2012 with updated results set for release early this year) correlates with *LM*'s survey results. With more companies attempting to squeeze efficiencies out of their supply chains by optimizing the transportation component, Banker says that the TMS market is enjoying double-digit annual growth.

A few of the verticals driving that growth include consumer package goods, food and beverage, electronics, and third-party logistics providers (3PL), says Banker. "We're beginning to see TMS adopted across a broader set of verticals." Credit the fact that optimization supports more verticals than it used to with helping to drive that expansion, he adds.

"Historically, TMS was good for multi-stop routes and for combining less-than-truckload [LTL] and truckload," Banker explains. "Now we're seeing international shippers using TMS to manage multi-route, international shipments on the road, on rail lines, and in ports."

Banker points to natural resources as one vertical where TMS has taken hold in recent years. "Sawmills are using TMS to manage the transportation of heavy loads of lumber, something we didn't necessarily see a few years ago," says Banker, who adds that growth in the Latin American market is also pushing up TMS' adoption rates. "We're seeing pretty rapid growth in that enterprise market where companies are willing to pay full price for TMS solutions—vendors don't even have to discount their products."

Over the next few pages we'll dig deeper into the key drivers behind the TMS market, show what vendors are doing to enhance and improve their solutions, and look ahead to 2013 to see how the TMS market will fare in the months ahead.

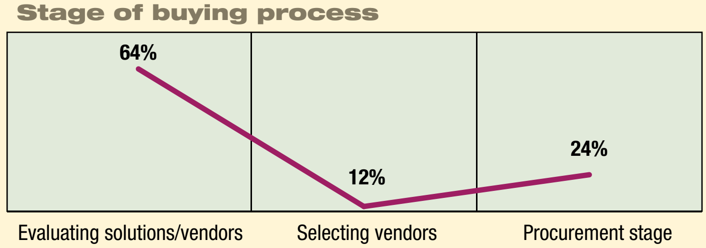
gaining altitude

How much do you plan to spend in the next 12 months? And, at what stage are you in the buying process?

Spend

<$100,000	$100K-500K	$500K-$1M	$1M+	Average $	None
28%	8%	5%	2%	$219,600	57%

Stage of buying process



Source: Peerless Resource Group/*Logistics Management*'s Software Users Survey

Fulfilling a need

A mature segment by supply chain software standards, TMS was first introduced in the 1980s as a way to more affordably and easily move freight between trade partners. Fast-forward to 2013 and TMS systems have evolved rapidly in order to keep up with user needs and demands.

Available as a standalone software package, inside an integrated enterprise resource planning (ERP) system, or in the cloud, TMS systems help shippers effectively move freight—from parcels to bulk commodities and everything in between—from origin to destination in the most affordable, streamlined manner possible.

The basic premise behind TMS hasn't changed much since the solutions were first introduced more than three decades ago, but the way in which the software manages the tasks, oversees activities, and reports back to its users has improved. Banker says that while the traditional architecture solutions remain the richest in terms of functionality, the developers of cloud-based TMS are integrating more modern ideas and connections into their offerings.

"We're definitely seeing more innovation from them than from traditional TMS vendors," says Banker. "The [cloud] vendors are leveraging their networks in new ways and moving faster than traditional solutions."

Also driving the TMS market right now is a large contingency of small- to mid-sized shippers that are waking up to the magic of combining technology with largely manual processes to achieve better results. The industrial distributor that manually manages multiple, daily deliveries to contractor jobsites within a specific geography, for example, can tap into routing and scheduling, routing and rating, and shipment consolidation functions via a cloud-based TMS for little or no upfront investment and no IT infrastructure other than a web browser and Internet access.

"There's definitely a much bigger potential installed base out there within the market of small- to mid-sized shippers that aren't using TMS at all right now," says Banker.

In some instances, it's the larger companies that have been holding back on their TMS investments, thinking that the projects will be too unwieldy or expensive to undertake. Companies that rely on age-old, complicated internal processes, for example, may steer clear of such investments. These shippers present significant opportunity for TMS vendors that can break through the objections and present solutions that enhance operations rather than interrupting them.

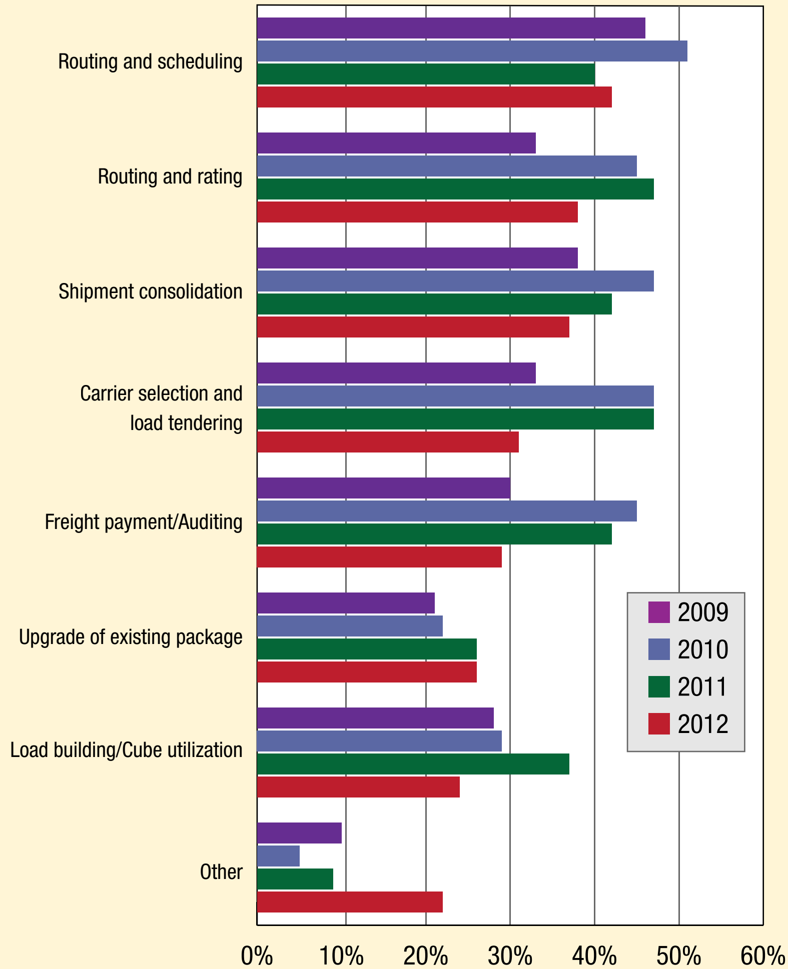
"Many corporations fear change and know how complicated it can be," observes Brad Silvers, a manager at consulting firm Capgemini. "As a result, there's been a lot of focus on the 'change management' portion of these TMS projects."

To assuage that fear, many TMS vendors are stepping up to the plate and ensuring that implementations go smoothly and that key shipper processes aren't interrupted. Vendors are also offering customizations based on the shippers' own business rules and providing, for example, EDI-based carrier integrations that are "linked right into the TMS," says Silvers. "That way the shipper doesn't have to go out and talk to every single carrier to complete the on-boarding process."

Another area where TMS continues to expand its footprint is within the fleet management space, where Silvers says the software is making a pretty big impact right now. "More and more companies that own their own fleets want to manage that portion of their business with their TMS," Silvers says. "Using a TMS, they can run that portion of their business just like they would a typical carrier, complete with the cost analysis, optimization, and other benefits."

Silvers, who has helped several companies successfully make the connection between TMS and private fleets, says that those implementations have been largely successful. "We've been able to build several solid fleet models by using the latest versions of the TMS that are currently on the market," says Silvers, who sees more potential for market growth within this area. "TMS has become a pretty competitive area and vendors are trying to one-up each other all the time. Right now, fleet is one of the areas that they're focused on."

What are the reasons you plan to purchase TMS?



Source: Peerless Resource Group/*Logistics Management*'s Software Users Survey

Thinking globally

It's not quite there yet, but TMS could become a major player in the global software market of the future, where a growing number of importers and exporters rely on robust technology systems to help them manage a fairly complex business environment.

"We see a lot of shippers that are seeking global trade capabilities integrated with their TMS," says Silvers, who points out that vendors have been moving in that direction over the last few years. "Global trade and TMS tend to work well together, although it does take some effort to get the two groups aligned with each other."

For now at least, Silvers says that the global trade options that are integrated into TMS lack the robust software features of their full-blown global trade management (GTM) counterparts. Greg Aimi, research director with Gartner, says that the lines are definitely beginning to blur between the two types of software, but points out that a global-enabled TMS is not the same as a GTM solution.

"GTM specifically centers on the regulatory and commercial requirements for cross-border shipments and import/export," Aimi explains. "Within TMS, the global transportation component plans the freight movement, optimizes it, and provides logistics visibility." Such systems are currently being used for air, road, ocean, and rail shipments across borders, says Aimi, based on carriers that are assigned across the multi-legged, multi-modal transportation system.

Expect to see more such functionality worked into TMS, says Aimi, who points to the recent merger of RedPrairie and JDA Software as a sign of things to come within the space. And as the national economy continues its slow recovery and technology infrastructure budgets loosen up, the number of companies investing in a new TMS should continue to climb steadily.

In fact, when you add rising fuel costs, an oncoming capacity crunch, and other challenges to the mix, it's clear that the TMS reign as the mainstay in the supply chain planning will remain solid throughout 2013.

Bridget McCrea is a Contributing Editor to Logistics Management


This is *not* how to gain supply chain visibility
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U.S. & Europe: Taking it to the next

A wide-ranging, progressive trade agreement between the U.S. and the European Union will open new opportunities for U.S. importers and exporters. As tempting as such an accord may initially appear, analysts insist that diligence on regulatory compliance is a must.

BY **PATRICK BURNSON,** EXECUTIVE EDITOR

A joint White House/European Union (EU) committee is due to report this month on whether it's politically realistic to try to create a massive U.S./EU free-trade bloc. If successful, it could mean lowered tariffs and coordinated regulation linking half the world's economic output.

"Reduction of trade barriers is always a good thing for the transportation industry as a whole—and forwarders in particular," says Brandon Fried, executive director for the Air Forwarders Association (AfA). "This proposed trade pact would not only increase commerce, but would also improve investment between both continents, thereby enhancing their recessionary economies."

He adds that "as part and parcel" of any such agreement, AfA would want and expect to see any regulatory challenges reviewed, addressed, and streamlined such as the EU Emissions Trading Scheme, security, and customs procedures.

Meanwhile, the Office of the United States Trade Representative (USTR), the Department of Commerce (DOC), and the Small Business Administration (SBA), in coordination with the European Commission's Trade and Enterprise Directorates, has launched a series of workshops to bring U.S. and EU government officials and small business owners together.

"We launched these U.S./EU small and medium-sized enterprises [SME] workshops with the aim of helping small businesses on both sides take better advantage of transatlantic trade opportunities and tackling barriers that may disproportionately affect small business," says Deputy U.S. Trade Representative Miriam Sapiro. "Ninety-six percent of all U.S. exporting companies to the EU were SMEs."

According to Sapiro, this will enable more small and medium-sized business to engage in transatlantic trade—especially in the innovative goods and services that drive our trade and investment relationship—and will sustain and create jobs on both sides of the Atlantic.

Small shippers benefit

Fortunately, this strategy is not without precedent, says Dr. Eugene Laney Jr., head of International Trade Affairs for DHL Express (USA). Given the success of recent trade agreements with Colombia, Panama, and South Korea, SMEs in the U.S. may be ahead of the curve when it comes to learning the intricacies of international trade.

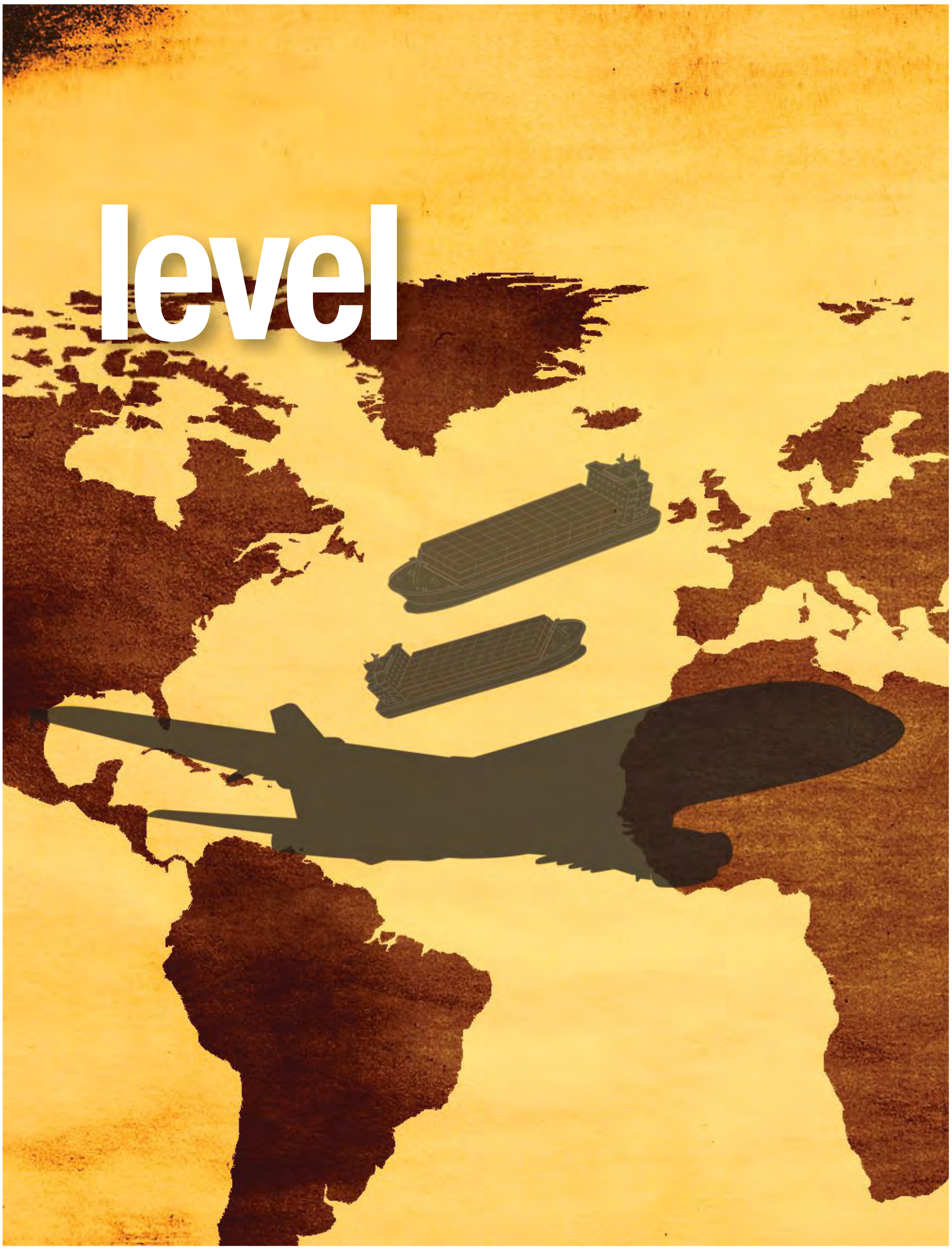
"This is especially true for shippers reliant on e-commerce," says Laney. "Companies with a staff of just 15 employees to 20 employees can become major global players using Amazon or eBay as a platform."

But not without exposure to considerable risk, Laney adds. If shippers try to go it alone, they may be surprised by hidden value-added taxes and administrative costs contained in the fine print of most transactions.

However, global third party logistics providers (3PLs) can offer embedded professionals who are well versed in the EU regulatory environment. According to Laney, going with a partner represents an attractive option for many SMEs to consider. At the same time, say analysts, global 3PLs were also recently able to clear Customs when the International Longshore Association threatened to strike late last year.

Shippers who opt out of "one-stop shopping" may wish to explore the advantages offered by independent trade compliance providers, like TBB Supply Chain Guardian. This 3PL contacted exporters as the recent labor situation worsened, and arranged clearance details at alternate ports.

"We have been preparing for this eventuality for months and



implemented a contingency plan that would help us continue delivering strategic advice to key shippers," says Ann Bruno, TBB's vice president of global trade.

Fortunately, for all concerned, the strike was averted, but not without some supply chain disruption.

Tech advances

Trade Tech, a global supplier of cloud-based services for the logistics industry, is one of the first technology providers to receive certification for U.S. Customs and Border Protection's (CBP) Automated Commercial Environment (ACE).

This certification allows Trade Tech's clients—including NVOs, shippers, and freight forwarders—to directly transmit and receive trade and security information with CBP via a single platform. The National Association of Customs Brokers and Freight Forwarders is encouraging all its members to begin integrating ACE into their business processes. The association said that this is especially important given that CBP will roll out new modules in 2013.

"ACE was created to provide a higher visibility between participating government agencies as to what cargo was coming into the U.S. and from whom," says Bryn Heimbeck, Trade Tech's CEO. "This allows the different agencies to further collaborate with one another to make better, more efficient decisions about security, targeting cargo for exams, and for the release of containers to expedite the flow of goods to the EU."

The top customs officials in the U.S. and Europe have made a major breakthrough in trade facilitation and trade security. The U.S. and EU have agreed to mutually recognize each other's security certified importers and exporters. The agreement will cut costs and time for about 10,000 U.S. companies participating in the C-TPAT program.

"This is welcome news," says American Association of Exporters and Importers President and CEO Marianne Rowden. "We anticipate that U.S. global traders will receive the same benefits in Europe as they do in the U.S. for meeting the rigorous security requirements to qualify for the C-TPAT program. This saves precious time and money for businesses and government agencies on both sides of the Atlantic."

The mutual recognition agreement will expedite the customs process for qualified importers and exporters and lead to fewer delays in moving goods. It will allow customs agents in the U.S. and Europe to focus their resources on high-risk transactions and improve supply chain security. There are about 4,600 Authorized Economic Operators (AEOs) in Europe and more than 10,000 C-TPAT members in the U.S. who stand to gain an edge from the agreement. It is expected to take effect by mid-summer of 2012, once the technology systems are set up.

"This is a huge step forward and holds great promise for trade," adds Rowden.

Progress report

U.S. Customs and Border Protection has posted to its Web site its monthly update on the functionality already implemented in the Automated Commercial Environment as well as near-term priorities for other ACE deliverables, such as cargo release and export processing.

In addition, the Advisory Committee on Commercial Operations of CBP has made available its own materials on the current status of ACE. Highlights of this information include the following:

- CBP is reorienting its development team and processes to produce smaller pieces of ACE functionality more frequently.
- CBP's plans call for the completion of remaining core ACE functionality in approximately three years, with new functionality deployed every six months.
- Remaining core functionality is that which enables full and complete trade processing in ACE and complete decommissioning of the Automated Commercial System, including cargo release, entry summary (including edits), export, finance capabilities, and critical fixes.

Beth Peterson, president of BPE Global, a compliance consultancy, says that collaborative sourcing and procurement, demand planning, global trade management software, and transportation management systems offered by technology vendors can make compliance easier, but only if it is completely embraced by the forwarder.

"Companies that do make the connection between technology and global trade compliance don't always make the best decisions around business case and vendor selection," says Peterson.

China is no sleeping tiger

Even without a trade agreement, U.S. trade with Europe totaled $485 billion in goods in the first nine months of 2012, compared with $390 billion in trade with China.

Furthermore, says the U.S. Chamber of Commerce, Europe buys much more from the U.S. than China does. U.S. exports of goods to Europe through September, 2012, added up to more than $200 billion, while China imported $79 billion worth of U.S. goods.

But China is no sleeping tiger, say Rosemary Coates, president of Blue Silk Consulting and a columnist for sister publication *Supply Chain Management Review*. She says that China will remain a major trading partner this year and beyond.

"With China's admission to the World Trade Organization [WTO] in 2001, import tariffs have been cut by 40 percent," says Coates. "In addition, China has virtually eliminated import licenses and quotas. Over 10 years, the Chinese market has been widely opened to U.S. imports."

At the same time, says Coates, this increase in activity can be "overwhelming" to Chinese Customs officials. "Customs regulations and applications for imports into China are very often inconsistently applied," she says. "For example if you are importing goods in Shanghai, your experience is likely to be different from your experience importing component parts in Shenzhen. There is some unevenness in the way the Chinese Regulations are interpreted and applied."

Adding to this complexity is the fact that enforcement of regulations can still be unclear. There may be conflicts in authority between Customs officials designated by Beijing and the local policing authority that has jurisdiction over the local airport.

When this happens, says Coates, importers are likely to experience delays.

The good news, Coates relates, is that as with most things in China, the infrastructure and systems are new and rather sophisticated.

"This means that if your documents are in order and there are no clarifying questions asked, your imports will be processed quickly and efficiently," adds Coates.

—Patrick Burnson, Executive Editor

Exporter's checklist

BPE Global suggests that shippers take the following steps to align their export practices with best-in-class operations:

- *Be informed:* Actively monitor export compliance trends and export control reform announcements from BIS, DDTC, and other federal agencies.
- *Be prepared:* Understand the implications of reform activities, such as enforcement coordination. Is your company prepared with a "best practices" compliance program?
- *Communicate:* Share strategic decisions that improve efficiency, mitigate risk, or increase revenue/decrease expenses with your senior management.
- *Be responsive*: When the U.S. government issues a proposed rule or seeks industry feedback make sure to respond. Otherwise, be prepared to live with regulatory changes that may not be conducive to your operation. Participate in your trade associations' export committees and prepare comments on the reform activity to date. Plan on joining industry working groups convened by government agencies chartered with reform, as well as those formed by your trade associations.
- *Be accountable:* Export management and related compliance functions should have accountability to the legal department and executive staff, in addition to the transportation and operations departments they traditionally report to.
- *Strategize:* Establish a global trade strategy and ensure you are prepared to change with the economy and markets in which you operate.
- *Automate:* All exporters should consider a systems-based trade management platform as a tool to manage complexity, and improve efficiency, as well as mitigate risk.

And finally, this caveat from Peterson and the BPE team: Any global trade compliance training should be based on what industry your company is in, how your products are controlled and classified, and how your company can ensure compliance based on the compliance requirements for your specific business.

"Remember that any effective training must speak from a common language, the language of your business and your products," adds Peterson.

—Patrick Burnson is Executive Editor of Logistics Management

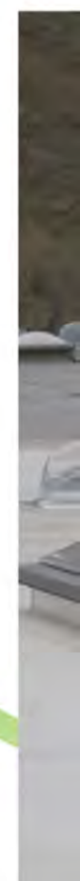
7 trends in sustainable design

Our warehouse/DC engineer examines how you can transform your traditional warehouse environment and implement sustainable strategies that benefit your business, your customers, and your planet.

BY **MAIDA NAPOLITANO**, CONTRIBUTING EDITOR

Incorporating sustainability initiatives into warehouse and distribution center (DC) design is proving to be a win-win proposition. It mitigates harmful effects to the environment, encourages worker safety and comfort, while winning the respect of your customers and community. But from a more critical business perspective, it also lowers operating costs, ultimately improving a company's financial performance.

"We believe it's the right thing to do," says Dana Schneider, senior vice president and practice lead for energy and sustainability services for Jones Lang LaSalle (JLL) Americas, a real estate services firm. "But at the end the day, my team will always be focused on cre-



ating a business case for implementing sustainability, primarily for energy efficiency because that's where the payback is."

While energy savings is key, there's also that additional lure of incentives, particularly in new construction. "These incentives offer money to companies to relocate, but in return companies may need to build to certain environmental compliance standards," says Schneider.

The "green" advantage doesn't stop there. "Sustainable, high performing facilities do not have to cost more," says Rod Oathout, principal at DLR Group, a global architecture and engineering firm. "A holistic approach to design that harnesses natural resources can elevate the performance of a building and provide a more productive work environment. There are also many options through partnerships with renewable energy companies to implement renewable energy at no additional cost to the project."

With all it has going for it, it's no surprise why more companies are pursuing Leadership in Energy and Environmental Design (LEED) certification from the U.S. Green Building Council (USGBC). "What LEED offers is an objective way to quantify the sustainability of a project that is recognized in the market," explains Ed Klimek, partner at KSS Architects. "If you're a developer and you want to establish a value for your sustainability, LEED gives you a mechanism by which to do that. In fact, USGBC reports how LEED-certified buildings continue to command the highest rents."

In 2013, USGBC will be releasing a new version of its LEED system that will include a checklist geared specifically for new construction of warehouses and DCs. Klimek, who worked on this new LEED release, says it better addresses some of the more unique characteristics of warehouses.

According to Klimek, even older trends are being given a fresh look, incorporating newer technologies and innovative techniques. Let's examine how you can transform your traditional warehouse environment to help build sustainable strategies that benefit your business, your customers, and your planet. And while we can't possibly mention them all, what follows are seven of the more popular trends gaining momentum in the sustainable design of warehouses and DCs.

1. Location, location, location

According to Klimek, the primary energy use in a DC is actually not the building itself, but rather the transportation that services that building. With this in mind, he suggests putting distribution centers where it makes sense primarily in terms of the logistics model. "That is your greatest impact on sustainability," says Klimek.

Companies are turning to network studies to investigate moving their distribution facilities closer to inbound ports or closer to customers to save local transportation energy consumption—and subsequently reduce environmental emissions. The latest modeling tools literally calculate a company's supply chain carbon footprint for its plants, its warehouses, and its different modes of transportation.

"This is then factored into the decision-making process for locating DCs in an optimized, more energy-efficient distribution network," says Klimek. To make an even bigger dent on costs and your carbon footprint, experts suggest optimizing truck capacity and developing more efficient transportation routes.

2. Better lighting

Sustainability in lighting has always been one of the most popular initiatives; that's because the percentage of energy attributed to lighting a facility is quite high.

"It represents typically

Patagonia's 71,000 square-foot, LEED-certified Gold DC expansion features a series of special skylights that include an array of mirrors that track the movement of the sun so that it constantly reflects natural daylight into the warehouse.

Source: Patagonia

about 30 percent of the energy use in a DC," says Klimek, adding that one of the more popular lighting strategies is 'daylighting.' "We just recently completed a building for Coca-Cola where we integrated daylight tubes as well as clear story glass to bring light into the distribution center." He adds that light fixtures with daylighting sensors were installed in this facility so that the building can often operate without any artificial lighting.

Brenton Kapelski, architectural department manager, and Louise Schlatter, master architect from the SSOE Group, a global engineering, procurement, and construction management firm, report several studies that have shown an increase in employee productivity and attendance when working in an environment with natural light. They suggest leveraging this further by complementing artificial lighting with occupancy sensors. "Artificial lighting can be tuned off in parts of the warehouse that are not being used," says Kapelski.

James Yerke, engineering supervisor for SSOE, suggests using energy-efficient fluorescent fixtures (such as T5s) with these occupancy sensors. "Due to the instantaneous strike time of a T5, they can be turned on and off providing lighting on demand," says Yerke. "By contrast, a high pressure sodium fixture needs about 10 minutes to warm up to full illumination and must cool about 15 minutes before they will restrike, making it not suitable for intermittent operation."

Patagonia's LEED Gold DC Expansion

When it comes to sustainability, Patagonia is all in. Whether it's producing its latest outerwear or expanding its existing DC, this West Coast-based manufacturer and retailer of high-end outdoor gear and apparel is always making sure that what it makes and how it makes it must have the least impact on the environment.

In 2006, fueled by strong business growth, the company built a 171,000 square-foot, LEED-certified Gold expansion to its existing 171,000 square-foot DC in Reno, Nev. The facility utilizes a combination of VNA storage, tilt tray sorters, 36 different packing stations, and a network of conveyors—all managed by a Manhattan Associates' warehouse management system—to flexibly and efficiently process orders in support of its wholesale, retail, and direct to consumer businesses.

While the state-of-the-art material handling system carries out the facility's primary mission of order fulfillment, DC Director Dave Abeloe knows that it does so in the most sustainable and ecologically friendly manner possible.

"That's been ingrained in everything that we do for as long as I've been here," says Abeloe. He's been with the company since 1978.

Abeloe points to lighting as key to the facility's energy savings. A series of special skylights on the roof includes an array of mirrors that track the movement of the sun so that it constantly reflects natural daylight into the warehouse. "It not only reduces the need for artificial light, but it also creates a much brighter environment creating many positive benefits including higher morale, higher pick rates, and lower errors just because people can see better," he adds.

Where artificial lights are used, motion sensors automatically turn lights on or off depending on activity levels. A combination of louvered vents, heavy insulation, and exhaust fans keep indoor temperatures in the 70s even during the hottest summer Reno months, without any air conditioning.

During cooler months, the facility uses radiant heat that's clean, quiet, and virtually maintenance-free. Metering systems monitor energy and water usage.

"Based on original modeling, this building is 47 percent more energy-efficient than a standard building," says Abeloe.

Outside they use "xeriscaping," a landscaping technique that uses plants native to the area to reduce the need for additional watering.

"Obviously, there has to be more work put into the design piece to make sure that everything is planned out in advance," says Abeloe. He strongly suggests using a team that knows what they're doing from the lead architects to the contractors.

"In the end, building a better building will create advantages both in saving energy and improving productivity and morale—and It will eventually help the bottom line."

3. Recycling

Be it in the planning phase, construction phase or in day-to-day operations, the trends of "recycling, reusing, and repurposing" remain one of the most popular in sustainable design.

Even before construction, our green experts see opportunities for sustainability and significant costs savings in land use—or reuse. Instead of new facilities, they propose redeveloping vacant buildings that are currently in abundance as a result of the difficult economy. Better yet, they suggest developing on land that has previously been developed or contaminated. If building a new DC, reduce construction costs by using precast concrete and steel with high-recycled content.

Once the DC is operational, recycling is now fairly common practice for today's DCs. Why not take it a step further? Use returnable plastic containers (RPCs) in internal captive pools designed specifically for a particular operation, or external shared pools with standardized designs that enable supply chain-wide efficiencies. Hillary Femal, director of strategic market development for IFCO systems, an international RPC provider, reports how their RPC pools have minimized their customers' operating costs with greater than 90 percent waste reduction.

4. Going for Netzero

A net-zero building is one that generates as much energy as it uses over a year, thus "net"-ting zero energy requirements to the local power grid. DLR's Oathout describes the design of a net-zero building as an iterative process where the building function and energy footprint are evaluated to optimize performance.

"Once optimal building energy performance is determined, a renewable energy strategy is formulated," says Oathout, adding how some DCs vast rooftops make them excellent locations for solar panels.

KSS Architects recently designed a net-zero facility for Somerset Tire Service

(STS) in Bridgewater, N.J., deploying a roof-mounted, 1.2 megawatt photovoltaic array that met the demands of the company's entire corporate campus with a less than five year payback. "Ironically it was not important to them to obtain a LEED rating," says KSS' Klimek, "but it is probably one of the most sustainable buildings we've ever done."

5. Smarter buildings

Buildings are not only getting greener; they're getting smarter. It's now best practice for new construction to have some form of smart building or energy management systems that uses "submetering" to give building managers visibility into equipment energy use and performance.

Submetering involves installing physical measuring devices onto machinery and equipment to monitor usage of electricity, gas, water, and other utilities. This data is then sent to web-based building management software for analysis and to identify opportunities for energy and cost savings.

"It involves understanding energy loads and where they're being used," says JLL's Schneider. "If something goes wrong with any piece of equipment anywhere in the building, these kinds of systems will immediately give you an alarm." She cites how an outside air damper could be stuck open and you could be heating 20-degree air all winter long. With an intelligent building management system, you could quickly pinpoint the problem and deploy an engineer immediately to fix it.

Source: Patagonia

Patagonia's distribution center carries out the facility's primary mission of order fulfillment with a state-of-the-art material handling system in a sustainable and ecologically friendly manner.

6. HVLS (high-volume, low-speed) fans

Even during triple-digit summers in Forth Worth, Texas, a leading retailer's one-million-square foot DC hardly taps into its air-conditioning system. That's because the company installed an integrated fan control system that uses 26 high-volume, low-speed (HVLS) networked warehouse fans with 24-foot diameters to cool indoor temperatures.

Designed to move massive columns of air at low speeds, HVLS fans can help regulate a facility's temperature year-round from floor to ceiling. "It permits facilities to increase or decrease thermostat temperature settings between 3 degrees and 5 degrees without realizing any negative temperature changes," says Dan Linder, HVLS sales manager at 4Front Engineered Solutions, a warehouse solutions provider.

By networking the fans, adds Linger, they can be easily controlled and monitored from a centralized location. Savings can range from 12 percent to 50 percent in cooling and heating costs, while providing employees with a more comfortable work environment.

7. Define goals first

With so many initiatives to choose from, Klimek suggests first defining your goals: "Why are you pursuing sustainability? Is it to reduce energy costs or is it to make a statement that's consistent with your company goals?"

Schneider advises to never rule out an initiative because you have a preconceived notion that it might cost too much money. "A lot of times the incremental cost is not as much as people think it's going to be," says Schneider. "In addition, if it makes your building more energy efficient, then there is very likely an incentive for it—especially in New York and New Jersey."

Maida Napolitano is a Contributing Editor to Logistics Management

Maximizing ROI from technology

Logistics and supply chain professionals gain practical advice on how to build a solid business case for investing in supply chain technology—and how to make sure you're getting the biggest bang for your buck once it's implemented.

By Francis J. Quinn and Judd Aschenbrand

Since supply chain technology emerged on the scene a few decades ago, practitioners have been interested in what's available, how it can improve their operations, and, more personally, how it will affect their job. And up until comparatively recently, the articles and industry events that addressed this technology focused on these aspects: What's hot, how can I use it, and how will the technology affect me?

Those questions remain as relevant as ever, of course. But now, more and more we're seeing another issue capturing mindshare: What can we do to maximize the ROI from our technology investment?

In fact, in just about every technology-related webcast that Peerless Media's Supply Chain Group has conducted over the past two years, the ROI question has been one of the very first asked by attendees. Maybe it's a sign of the economic times, which are still less-than-robust. Or it could be a more cautious approach to expenditures of any kind. In any case, all segments of the supply chain community—shippers, vendors, consultants, and academics—would likely agree that it's a positive development.

This article will offer some practical advice on how to build a solid business case for investing in supply chain technology and, once you've made the investment, how to make sure you're getting the most bang for your buck. We'll also introduce some interesting findings from a recent survey that our Peerless Research Group conducted on what readers are doing to capture maximum ROI from technology—and where they could improve.

Making the business case

Before you can gain any return on supply chain technology, of course, you first need to make the investment. And in order to make the investment, you need a compelling business case that you can present to management. Boiled down to its essence, the business case has to answer the basic question: How will this technology investment make us a better, more profitable company?

Long-time supply chain educator, software analyst, and columnist for sister publication *Supply Chain Management Review* (*SCMR*) Larry Lapide says that the benefits proposition needs to center on three key areas: efficiency, asset utilization, and customer response. In a recent Insights column (*SCMR* November 2012), he broke down the

Piotr Powietrzynski

benefit components this way:

• **Efficiency:** This benefit area is largely cost-reduction oriented and focuses on such elements as cost-of goods (COG) savings, operating cost reductions, and productivity improvements.

• **Asset utilization:** An often-overlooked source of advantage, asset utilization can include increased plant and warehouse usage and throughput, faster inventory turns, and deferred capital expenditures through better facility utilization.

• **Customer response:** Technology can bring benefits in the critical "customer facing" activities through improved cycle times, "perfect order" fulfillment, and enhanced product or service quality.

Lapide advises that the business case focus intently on all these areas, not just the cost-inventory-reduction aspects, which is often the tendency. The case is strongest, he adds, when multiple potential benefits can be demonstrated from the new software functionality.

In his column, he offered this example: "Consider a warehouse management system (WMS) integrated with an inventory management system (IMS). These might be implemented primarily for the sake of efficiency, such as to reduce operating costs and improve productivity.

However, customer response benefits might accrue as well, such as less order-splitting, shortened cycle times, and improved perfect order performance. In addition, asset utilization benefits might include deferring the need to expand storage space and reduce the use of overflow warehousing."

In making the business case, it's critical to do so in terms that the decision makers—executive management and financial leadership—will understand. Robert Rudzki, a former Fortune 500 senior vice president and CPO, now president of Greybeard Advisors LLC and a blogger on scmr.com, characterizes this as the language of the CFO. Basically, this will be expressed in revenue- or cost-related terms, Rudzki says, but it also could be expressed in terms related to working capital or asset utilization. All of these elements can have a powerful impact on the overall key measure of ROIC (return on invested capital).

"Before you start on the business case, the best approach is to ask your own financial folks up front how they would like to see the return calculated," Rudzki advises. "This will be especially advantageous when you're measuring the effectiveness of your investment once the technology is implemented."

A preliminary step to setting those metrics and putting them in place is to understand your current processes and performance. The experts we interviewed for this article uniformly stated that without the baselines in place, any subsequent measures of ROI will be deficient—and maybe even meaningless.

"Taking an initial, introspective look at the company's current processes and resources before integrating technology into the global compliance mix is equally as important," says Beth Peterson, president of BPE Global and an expert in trade compliance software. "The biggest mistake [companies] make is that they implement a solution without even beginning to measure what they were doing before they implemented it."

Setting expectations

Identifying exactly what you want to achieve from technology investment better positions you for successful capture of the ROI. Is it improved customer service and response time from a TMS system? Or a reduction in operating costs from a new WMS? Or is it more accurate transactions from an automated procurement solution? In all cases, try to be as precise as possible—and be realistic in your goals.

A couple of caveats apply in the expectations-setting process. For one thing, make sure that the objectives do not benefit one functional area to the detriment of others or to the company as a whole. Jeff Karrenbauer, president of the consulting and software firm INSIGHT, sees this as a recurring problem in the implementations he has witnessed. "The objectives need to be comprehensive," he says. "Projected cost savings in transportation, for example, might result in higher costs in inventory or other areas. The silo mentality is still alive and well in many organizations, so this is something to watch for."

Rudzki of Greybeard Advisors argues that the objectives of any investment in technology need to be expressed within the broader context of strategic goals. "You first need to understand the strategic objectives of your business whether it's ROIC or other metrics your executives are focused on, and also the role of supply management in supporting those objectives. You then develop goals for the technology investment that supports that role and those broader objectives," he says. "The technology is the enabler of those objectives and initiatives—it's not technology for technology's sake."

Vendor evaluation and selection

Once the investment gets the green lights (and in many cases even before the official go-ahead is given), the critical process of vendor evaluation and selection gets underway. An excellent summary of the key questions to ask in this process comes from Beth Peterson whose firm, BPE Global, helps companies with their global trade strategies.

In an October 2012 webcast presented by *SCMR* and *Logistics Management*, Peterson advised shippers to use these seven questions as a guideline when evaluating prospective supply chain technology vendors:

Key Elements of Strategic Transformation

Source: Adapted from Next Level Supply Management Excellence, J. Ross Publishing, 2011. (Used with permission).

1. What is the vendor's planned capability?

2. What has the vendor developed in the previous two years?

3. Was the vendor on track with what was planned on their roadmap?

4. Has the vendor switched strategies based on their biggest accounts/highest revenue opportunities?

5. Does the vendor have a user group and/or advisory board?

6. Is there an opportunity for you to benchmark with other companies who use the vendor's solution?

7. How closely does the vendor track product releases against their roadmap?

(Note: To hear Peterson's webcast presentation in full, go to www.scmr.com, click on the "Webcast" tab, and sign on to her presentation at the "Best Practices in Global Transportation & Logistics" Conference.)

Virtually everyone we spoke with underscored the importance of checking references before making any commitment, particularly if the vendor is new to the organization. Importantly, these reference checks should be fairly in-depth. Too often, this activity is just a quick phone call that does not go into any detail or provide any feedback that would aid in decision making, one consultant told us. A prospective buyer should come in with a well-researched set of questions for the reference to get as much useful information as possible. And, there should be more than one reference contacted.

Then there's the hard-to-define but important factor of "fit" with your company? Does the prospective vendor understand your business, your culture, and your priorities in getting the software up and running? Oftentimes, good insight into these questions can be gained from a test pilot using a slice of the vendor's software.

Rudzki likens this to "playing in the sandbox." He explains: "The idea is to use the software in your environment for a week or so, applying it on your own terms and with your own people." This approach not only gives you sense of the software's capability and intuitiveness, but also of the vendor's willingness to cooperate with you going forward, he adds.

The implementation process

How effectively you proceed with the implementation process is central to a successful launch, consistent usage, and ultimately ROI capture. Key factors that need to be in place include the flowing: effective user training; management support of and commitment to the initiative; sufficient allocation of resources; and, perhaps most importantly, buy-in from the users.

Speaking to the that last point, Rudzki of Greybeard Advisors says that one of the biggest obstacles to buy-in relates to the users' understanding of the business reason for the technology. "If the users understand the bigger picture of how the technology will make the company more efficient and successful, they are more likely to become excited about it," he says. "But if they view it as just another task they're adding to our to-do list, they are more likely to resist."

Another success factor in ongoing implementation revolves around redundancy—that is, making sure that multiple users know how to use the various components of the system. "One of the biggest problems we see with our clients is continuity in terms of employee turnover," says Jeff Karrenbauer of Insight, a provider of supply chain solutions and consulting services. The solution, he says, lies in an aggressive and comprehensive training program.

With some types of supply chain software, WMS and TMS solutions for example, it's advantageous to begin by implementing certain modules as opposed to the entire package. "Getting one element up and running successfully and delivering results can create good momentum and help ensure that the project is on track," Karrenbauer says.

Measurements in place

The exact measures used will vary depending on the specific application employed, but they will typically center on cost savings, revenue generation, or other quantifiable operational improvements. So for an operations-oriented system like a WMS, TMS, or procurement automation system, the measures could focus on administrative expenses, greater throughput, inventory turns, or labor productivity. Costs for each of these areas can be measured against the baseline established as part of the ROI assessment.

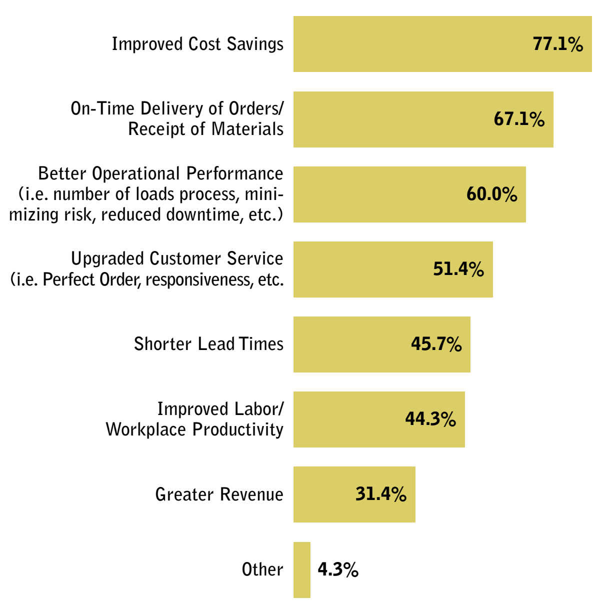
Beyond the core measures that focus on cost reduction and lower inventory, other measures need to be considered as well. In particular, Larry Lapide points to the "customer facing" metrics that address customer satisfaction and that can lead to more business and greater market share—i.e, a revenue-generation metric.

"Measurements like order cycle time and perfect order performance are critical," says Lapide, "because this is what your customers actually see. They don't see your internal metrics." Another effective metric Lapide has observed is the amount of time that sales reps spend on order management "administrivia." By reducing this time, he notes, you not only reduce order cycle times from a customer perspective, but from a revenue-enhancing standpoint free up valuable selling time.

Technology also can greatly enhance asset utilization, adds Lapide, and thus should be measured as well. "In a number of cases, I've seen the adoption of new technology enable a company to take an existing asset and greatly improve its productivity," he says. "This can have a huge impact on the company's balance sheet, particularly if it means that an enhanced existing asset means that they will not have to build or acquire new assets."

In this regard, production and changeover cycle times are operational metrics that when improved can increase production capacities and possibly defer building a new plant or installing a new production line. With the right measures in place and with accurate data available, it becomes far more feasible to measure the progress of a given technology investment toward delivering the expected return.

What Benefits Are Measured in Your Analysis?



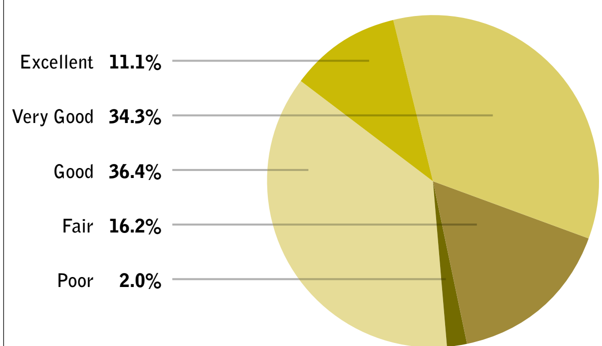
Source: Peerless Research Group (PRG)

What the survey says

We've heard from a number of experts about maximizing ROI from your technology investment. Now let's take a look at what logisitics and supply chain practitioners are doing—or are not doing—on this front.

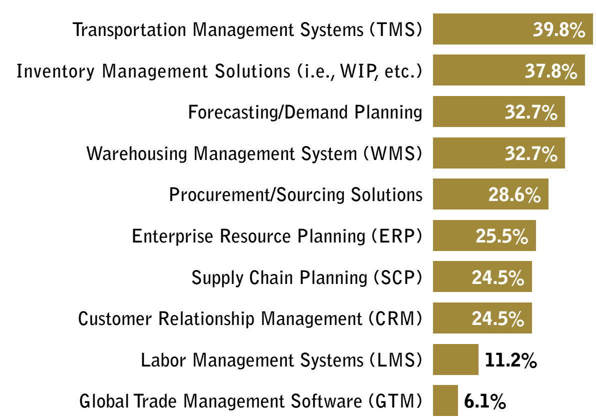
Peerless Research Group in late 2012 conducted a survey among our readers to determine the practices and procedures they had in place to maximize return on their supply chain technology. The results reveal that in many cases they are following the counsel of the experts we just cited, but in other important areas there was need for improvement.

How Would You Assess Your Return on Technology Investments?



Source: Peerless Research Group (PRG)

In Which Areas Are You Attaining Your Greatest Return on Technology Investment?

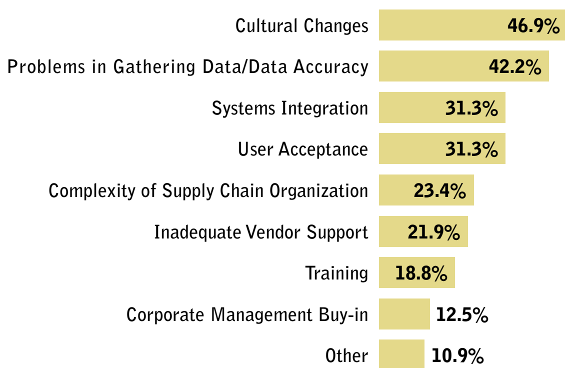


Source: Peerless Research Group (PRG)

Most of the 100-plus respondents to our survey do, in fact, conduct some sort of cost/benefit analysis on their technology implementations. The most commonly used measures, mentioned by over three fourths of the survey sample, was cost savings. This was followed by on-time delivery of orders and better operational performance. The last measure incorporated such activities as number of shipments processed, loads handled, and inventory accuracy.

As for their general assessment of the benefits received for the cost of the technology, the supply chain managers expressed satisfaction overall—though room for improvement was certainly evident. Forty-five percent noted that their overall return was either excellent or very good. On the other hand, over half gave the ROI

What Obstacles Did You Encounter in Implementing Strategies to Assess Your ROI?



Source: Peerless Research Group (PRG)

a good or fair rating. Considering the level of expenditure for many of the technology investments, that number is probably not as high as it should be.

User acceptance and underlying supply chain processes were cited as key to maximizing return from the investments in software and solutions. Fully half of the respondents, in fact, mentioned these factors. Improved customer service resulting from the technology was another major success factor cited.

Asked about what specific types of technology yielded the top return, readers gave a mix of responses, reflecting the range of software typically in place in their organizations. TMS received the highest number of mentions (40 percent) as the top-ROI technology, followed closely by inventory management systems at 38 percent. By contrast, the technology application where ROI was most often reported as failing or disappointing was forecasting/demand-planning systems. Twenty percent reported disappointment with these systems.

The survey respondents pointed to several obstacles that kept them from achieving the hoped-for return. The biggest, not surprisingly, was the cultural change associated with implementing anything new—in this case, new software. In fact, close to half of all respondents cited the change component as a major obstacle to implementation success.

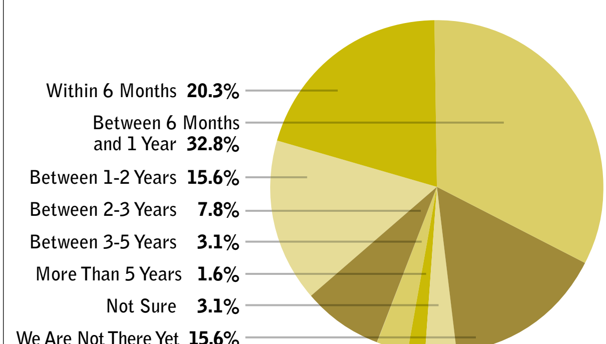
Problems around data gathering was another obstacle to maximizing ROI, cited by 42 percent of respondents. "Data timeliness and accuracy is the key factor to obtaining a successful ROI for your investment," one respondent commented.

The survey findings had some important implications for vendors as well. In particular, the users felt that the vendors could be a little more proactive in helping them gain the expected return. A number of respondents offered their views on how this could be done. Better training for users, a more timely response to issues the customer may be experiencing with the software, and greater post-implementation accessibility were among the recommendations offered.

Several comments centered on the vendors' need to become more conversant with the user's business. The advice of one responding manager: "Hire business-knowledgeable, transaction-savvy talent—not system wonks."

As to the timeline of the expected return on investment, the majority of respondents were looking for fairly quick results. Close to 80 percent expected an ROI within two years; of that, 17 percent were looking to capture the expected return within six months of implementation. "ROI is everything when discussing technology with prospective clients" one vendor told us. Or as one respondent put his implementation objective: "Quick install, short learning curve."

When Did You Actually Start to Realize a Return on Your investment?



Source: Peerless Research Group (PRG)

Interestingly, in most cases those high expectations were met. Twenty percent of respondents reported achieving ROI on their investment within six months and another 33 percent did so within a year. Asked what is the one key factor to obtaining a successful ROI for your investment in supply chain technology, one supply chain manager wrapped things up succinctly: "The effort needs to be led by supply chain, not IT; reviewed and endorsed by senior management; and the right skills applied with adequate time allotted to do the job."

Frank Quinn is Editorial Director of Supply Chain Management Review; *Judd Aschenbrand is Research Director of Peerless Research Group (PRG)*

SHOW PREVIEW

ProMat 2013

SHOW HOURS

Monday, January 21, 2013
10:00 a.m. – 5:00 p.m.

Tuesday, January 22, 2013
10:00 a.m. – 5:00 p.m.

Wednesday, January 23, 2013
10:00 a.m. – 5:00 p.m.

Thursday, January 24, 2013
10:00 a.m. – 3:00 p.m.

What's new and what's next

With more than 800 exhibitors, three keynotes and an extensive educational program, ProMat 2013 looks to be the biggest edition of the show yet.

BY **NOËL P. BODENBURG**, MANAGING EDITOR, SUPPLY CHAIN GROUP

With less than a month to go before ProMat 2013 opens, preparations for North America's largest materials handling show are heating up.

Nearly 30,000 visitors are expected to attend ProMat 2013, which will be held January 21 to January 24 in Chicago's McCormick Place. Sponsored by the Material Handling Industry of America (MHIA), more than 800 companies will showcase what's new and what's next in materials handling and logistics equipment and systems solutions. The show will also include three keynotes as well as an extensive educational program.

"Companies are spending money on material handling solutions that improve productivity," says George Prest, CEO of MHIA. "In 2011, attendees came to the show to solidify their purchasing plans. This year, attendees will be coming with projects in hand and wallets open; they're looking for the latest in innovations that can help them attain their goals."

Exhibits from industry, commerce and government will be showcased throughout the 300,000-square-foot show floor.

"The 2009 installment of ProMat was the largest show we've ever hosted, and we're projecting that 2013 will top that show both in terms of exhibit square footage and attendance," says Prest.

In addition to ProMat, registered attendees will also get free entry into Automate 2013, held in McCormick Place North. Like ProMat, Automate (formerly the International Robots, Vision & Motion Control Show) is held just once every two years. The event is sponsored by the Association for Advancing Automation (A3) and its trade associations, which include the Robotic Industries Association (RIA); AIA, the global association for vision and imaging; and the Motion Control Association (MCA). Automate will showcase the full spectrum of automation technologies and solutions.

"It's a natural fit for the associations," Prest says. "In our industry, automation represents a large area of growth, and it's at the top of everybody's agenda right now as companies continue to seek to improve efficiencies."

To make it easier for attendees to find the solutions they are looking for, the ProMat 2013 show floor is divided into four solution-specific sections:

• **Manufacturing & Assembly Solutions Center:** Featuring automated assembly support, intelligent devices, robotics, ergonomic and safety equipment, work stations, light-rail, and other assembly assist equipment and systems for the manufacturing environment.

• **Fulfillment & Delivery Solutions Center:** Showcasing solutions for traditional or e-commerce order fulfillment, order picking and packaging, third-party logistics, warehousing, distribution, or transportation.

• **Information Technology (IT) Solutions Center:** Highlighting supply chain software solutions, RFID, auto ID and data collection, transportation management systems, manufacturing execution systems, logistics execution systems, enterprise resource planning, and order management systems.

• **The Knowledge Center (Including the educational conference):** Offering resources to educate and build awareness of what the material handling and logistics industry has to offer the supply chain as a whole.

Keynotes

ProMat will feature three keynote presentations, each offering insights from experts into future developments in robotics, business, and the supply chain.

On Monday, Henrik I. Christensen, KUKA chair of robotics and director of robotics at Georgia Tech, will deliver the first keynote. In a presentation entitled "The Impact of Robotics on Economic Growth," Christensen will detail how advances in robotics are revolutionizing manufacturing and distribution operations, as well as share insights into how these developments will propel future economic growth.

"We've seen tremendous progress in robotics and automation in materials handling over the last few years," explains Christensen. "There has been a lot of development in automation that does the handling tasks that don't require a lot of intelligence and are physically challenging. Additionally, the use of robotic technology decreases the amount of space that you need—and real estate is getting increasingly expensive."

On Tuesday, Steve Forbes, chairman and editor-in-chief of Forbes Media, will deliver the second keynote presentation. Forbes will make recommendations for "Navigating the New Political Climate for Business Growth and Success."

With the presidential inauguration having just taken place, one-time presidential candidate Forbes will assess the impact of the elected president and his administration on the future of the economy and business growth. Having served two administrations, Forbes' keen ability to provide economic and political insights on the most debated issues of the day is trusted by business leaders here and abroad.

On Wednesday, the final keynote presentation will feature a discussion of "The Future of Material Handling,

Celebrating innovation

ProMat 2013 will host the first-ever **ProMat Innovation Award** competition. The **ProMat Innovation Award** serves to educate and provide valuable insights on the latest manufacturing and supply chain innovative products and services to ProMat attendees. This award will be given to winners in two categories: **Best New Innovation** and **Best Innovation of an Existing Product**. Only ProMat 2013 exhibiting companies are eligible for the award.

The contest defines innovation as a new product, product line, technology, or service or new application of existing products or technology that create quantifiable and sustainable results in terms of ROI, cost savings and customer satisfaction.

Finalists must also participate in an on-site demonstration. Between 8 a.m. and 9:30 a.m. on Monday, Jan. 21, 2013, selected finalists will present and demonstrate their innovation in their booth on the ProMat show floor. A panel of judges will evaluate the selected product or service and choose the winners in each category.

Submissions are now being accepted. Finalists will be judged by a committee of judges on the morning of Jan. 21, 2013, and the award winners will be announced during a press conference in The Hub on the show floor on Monday, Jan. 21, 2013.

Logistics and Supply Chain." Setting the stage for the discussion will be remarks from futurist Edie Weiner, president of consulting group Weiner, Edrich, Brown.

"I will set the backdrop for which the future of materials handling, logistics and supply chain will unfold," explains Weiner. "I'll talk about why our thinking is stuck in yesterday, and why we have to break away from that and see the world for where it's really going, not from where we think it is. Because the way we see the future is really colored by everything that we've ever learned, so it's important to start fresh and new."

After her presentation, Weiner will

Knowledge Center to host 90+ free educational sessions

THINK YOU KNOW everything there is to know about how materials handling makes the supply chain work? Not so, according to the folks conducting the 90-plus free educational sessions located in the ProMat 2013 Knowledge Center. The sessions run in eight separate theaters from 10:30 a.m. to 4:30 p.m. on Monday and Tuesday, and on Wednesday from 10:30 a.m. to 3:00 p.m.

"The On-Floor Seminars are presented by industry experts in material handling and logistics solutions," said Amy Cunningham, manager of ProMat's educational seminars. "It's a superb opportunity for attendees to be educated on the latest material handing technologies from exhibitors, industry groups and research institutions."

Topics range from best practices reviews to maintenance to metrics. Detailed abstracts of each session, with key takeaways for attendees, are included in both the show program and in a special seminar directory booklet. Only a few of the sessions run twice. Each theater holds 100 participants, and it's first-come/first-served with no standing room allowed, added Cunningham.

Additionally, several industry groups will be presenting the latest insights into their technologies. These sessions typically feature three panelists from different companies discussing new developments, applications and uses for the equipment represented by their group. "These industry group sessions always generate lot of interest and high attendance levels," Cunningham said.

Industry group sessions are as follows:

Monday January 21

- "KPIs for Maximizing Goods-to-Person Investment," presented by the Integrated Systems and Controls Council, 12:45 to 1:30 p.m., Theater D.
- "Can You Turn Your Green Conveyor and Sortation Initiatives Into Greenbacks?," presented by Conveyor and Sortation Systems, 1:30 to 2:15 p.m., Theater I.
- "The 21st Century Warehouse: Automation Prepared For The Future," presented by the Automation Alliance, 2:15 to 3:00 p.m., Theater F.
- "Rack Storage - Fitness Through The Life-Cycle," presented by the Rack Manufacturers Institute, 3:00 to 3:45 p.m., Theater C.
- "Industrial Work Platforms, Equipment Platforms and Mezzanines," presented by the Storage Equipment Manufacturers Association, 3:45 to 4:30 p.m., Theater H.

Tuesday January 22

- "Multi-Channel Retailing: Upgrading Your Order Fulfillment Systems," presented by Order Fulfillment Solutions, 10:30 to 11:15 a.m., Theater I.
- "Are Automatic Guided Vehicles Right For You? Customer Case Studies of Successful AGV Applications," presented by Automatic Guided Vehicle Systems, 11:15 a.m. to 12:00 p.m., Theater F.
- "Optimized Wave Picking and Sortation: Beyond Connecting The Dots," presented by the Integrated Systems & Controls Council, 12:45 to 1:30 p.m., Theater B.
- "Bridging Technologies Using Singulation and Sortation," presented by Conveyor and Sortation Systems, 2:15 to 3:00 p.m., Theater F.
- "AS/RS Revolution – Six Steps To Selecting The Right AS/RS For Your Business," presented by Automated Storage and Retrieval Systems, 3:45 to 4:30 p.m., Theater H.

Wednesday January 23

- "Multi-Channel Retail Order Fulfillment Solutions," presented by Order Fulfillment Solutions, 10:30 to 11:15 a.m., Theater E.
- "Top 10 Reasons To Automate," presented by the Automation Alliance, 11:15 a.m. to 12:00 p.m., Theater B.
- "Using Metrics and SCE Systems To Drive Performance Improvement," presented by Supply Chain Execution Systems & Technologies Group, 12:00 to 12:45 p.m., Theater E.
- "Industrial Shelving, Shop Furniture, Drawer Storage and Cabinetry," presented by the Storage Equipment Manufacturers Association, 12:00 to 12:45 p.m., Theater I.
- "Casters: Do They Matter? Making The Right Decision," presented by Institute of Caster and Wheel Manufacturers, 12:45 to 1:30 p.m., Theater D.
- "6 Reasons For Small And Medium Companies To Implement Order Picking Carousels and VLMs," presented by Automated Storage and Retrieval Systems, 12:45 to 1:30 p.m., Theater H.
- "How To Calculate Carbon Footprints: A Wood Pallet Example," presented by College Industry Council on Material Handling Education, 1:30 to 2:15 p.m., Theater G.
- "Warehouse Management Systems As Engines of Organizational Change," presented by Association of Professional Material Handling Consultants, 2:15 to 3:00 p.m., Theater B.
- "Rack Storage - Specification, Standards, Codes and Certification Protocols," presented by Rack Manufacturers Institute, 2:15 to 3:00 p.m., Theater D.

If you miss a session, or can't decide between two being held at the same time, you can still view and hear the content later. All of the PowerPoint presentations will be captured in PDF format and synchronized in a Flash file with audio recordings of each session. These files will be posted to www.promatshow.com after the conclusion of ProMat.

moderate a panel of materials handling and supply chain experts as they discuss how important issues, key trends and shifts in best practices will make the supply chain work in the future. The panel includes George Prest, CEO of MHIA; Rick Blasgen, president and CEO of the Council of Supply Chain Management Professionals (CSCMP); Michael J. Mikitka, CEO of the Warehousing Education and Research Council (WERC); and Liz Richards, executive vice president of the Material Handling Equipment Distributors Association (MHEDA).

Educational tracks

Three separate educational tracks will be offered during the show—each having an expanded view into a specific topic related to materials handling and supply chains. The tracks are progammed by:

- The Association for Automatic Identification and Mobility (AIM);
- EASE Council (Ergonomic Assist Systems and Equipment); and
- Council of Supply Chain Management Professionals (CSCMP).

AIM will present a series of three speakers discussing the use of their members' technologies. These sessions are free to registered ProMat attendees without advanced registration.

"For an educational partner, ProMat provides a terrific opportunity for us to share some just-in-time information about topics that our members know a lot about," says Linda Young, AIM's director of business development. "Participants will take away some innovative ideas about how companies are using automatic ID and mobility technologies, perhaps in ways that they hadn't thought of before. The presenters will share sample case studies that have potential for use in other applications in different industries."

Jonathan Ludlow, author and project manager at Microscan, will discuss "Unit Level and Product Traceability Using Data Matrix Codes: Benefits, Applications and Trends." Ludlow will explain the benefits of providing unique identity to individual components in a manufacturing process, as well as practical methods of direct part marking.

Patrick Noone, vice president of sales and marketing at Woelco Labeling Solutions, will present "Improving ROI with Automated Identification Technology." He will review the emerging technologies that can be combined to facilitate automation in product identification, as well as verification, to yield improvements in production, quality and traceability.

Finally, Jason Bridwell, vice president of sales at Portsmith Technologies, will conclude the AIM sessions with "Mobile Computing for the Advanced Supply Chain." Bridwell will detail how enterprise mobile computing solutions are impacting some of the largest global supply chain operations, and share how real-time information and immediate communication can boost productivity and effectiveness.

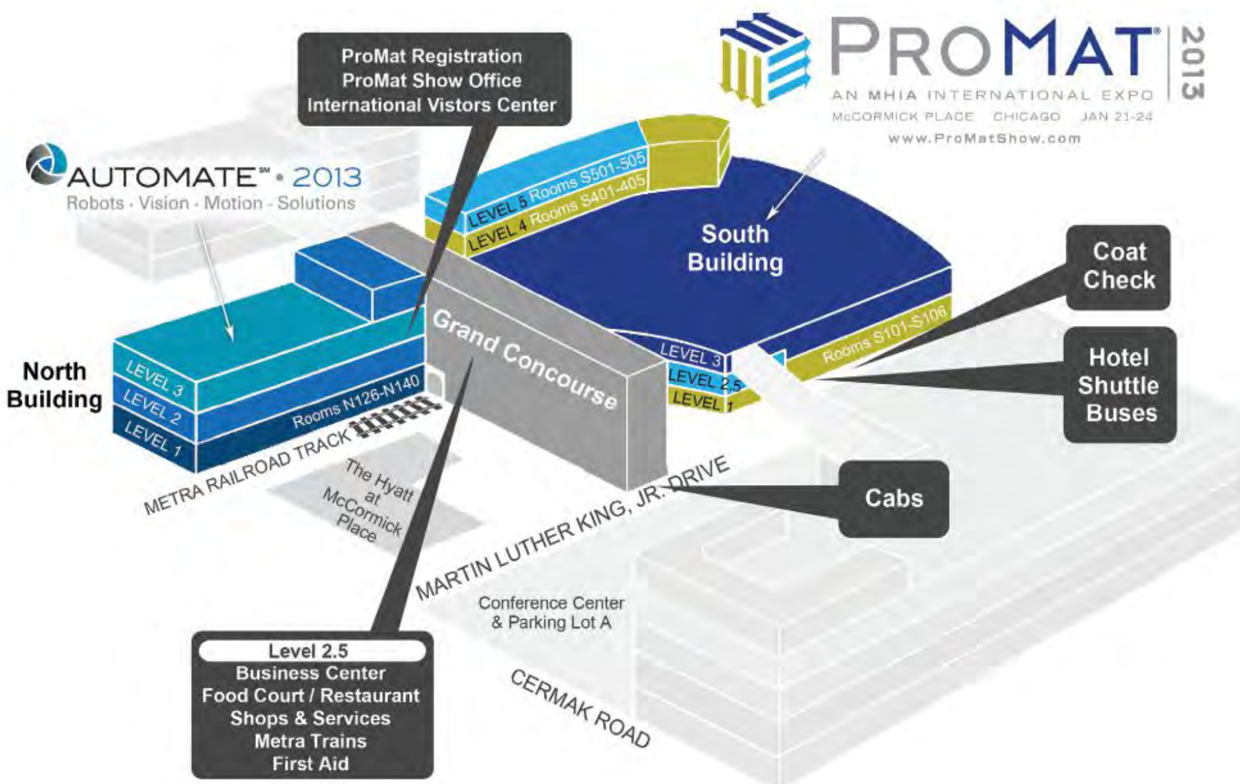
On Wednesday, the EASE Council will host "Manual Material Handling Workshop: Engineered Solutions for Manual Handling Jobs," with sponsor support from the Institute of Industrial Engineers (IIE) and the National Institute for Occupational Safety and Health (NIOSH). This workshop will provide an opportunity to hear from retailers, wholesalers and warehouse safety and loss prevention representatives as they participate in open panel discussions about the ergonomic challenges associated with manual materials handling jobs.

"This session features a panel of internationally recognized experts who design materials handling devices, along with leading ergonomic health and safety experts," explains Ray Niemeyer, educational services director and EASE Council managing executive of MHIA. "They will be exchanging ideas to help find materials handling technology solutions that can reduce workers compensation claims and improve employee performance."

Participants must register in advance for the session, which includes a separate fee outside of ProMat registration. ProMat attendees wishing to participate can contact Ray Niemeyer at rniemeyer@mhia.org prior to Wednesday.

Also on Wednesday, a special educational track session presented by the Council of Supply Chain Management Professionals (CSCMP) will be offered immediately after the keynote panel. This panel discussion will further elaborate on the insights shared during the keynote.

Entitled "When the Rubber Meets the Road…Implementing Future Vision," the panel includes Jeff Starecheski, vice president of logistics for Sears Logistics Services, and John Caltagirone, supply chain management strategy educator at Chicago's Loyola University. Moderated by Rich Sherman, director of strategic development for CSCMP, the panelists will offer their views on how logistics and supply chain management are evolving to meet future business challenges. They will examine significant trends and practices that will most affect operations in achieving and sustaining peak performance. (See show map on page 60.) □



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POWER OPTIONS: The hunt for operational efficiencies

Industry experts present their customers' pain points around fuel and energy and offer tips to ensure efficient and productive fleets.

By Josh Bond, Editor at Large

Lift truck uptime is the key to productivity in the warehouse, and the management of energy and fuel are the keys to lift truck uptime.

Unfortunately, there is nothing predictable about energy prices. As the price of lead has climbed in recent years, battery prices have doubled. Emissions standards have driven owners of internal combustion (IC) forklifts to transition to battery electric platforms, even as propane prices trend downward. In some cases, the focus on warehouse efficiencies has created the business case for the substantial infrastructure costs associated with fuel cell-powered fleets.

Most end-users just want equipment that works when they need it to work. Efficiencies are nice, long-term planning is great, but many fleet owners already have full plates as they try to do more with less. Those considering new equipment or technology platforms often buy first and hunt for efficiencies later.

But why separate those steps? According to industry experts, early consideration of power options can make management easier throughout the life of the equipment, no matter what business changes may come. The culture of each operation might need to make some big changes to reap the full benefits, but they don't have to go it alone. We recently spoke with makers of lift trucks, batteries, charging systems, and fuel cells to learn how efficient technologies, operator training, and data capture can keep costs down and equipment up.

The cultural shift

Whether transitioning from IC to batteries, from battery rooms to opportunity chargers, or from the status quo to more efficient practices, old habits die hard.

"You can expect a lot of resistance," says Kenro Okamoto, electric product planning specialist for Toyota Material Handling. "But you should treat a battery maintenance program with as much importance as you would a safety program."

The transition from IC to electric is perhaps the riskiest, according to Steve Rogers, senior product marketing specialist for Mitsubishi Caterpillar Forklift America. Rogers says end-users are pushed to adopt electric technology in an effort to prevent product contamination or comply with state regulations governing the average emissions of a fleet.

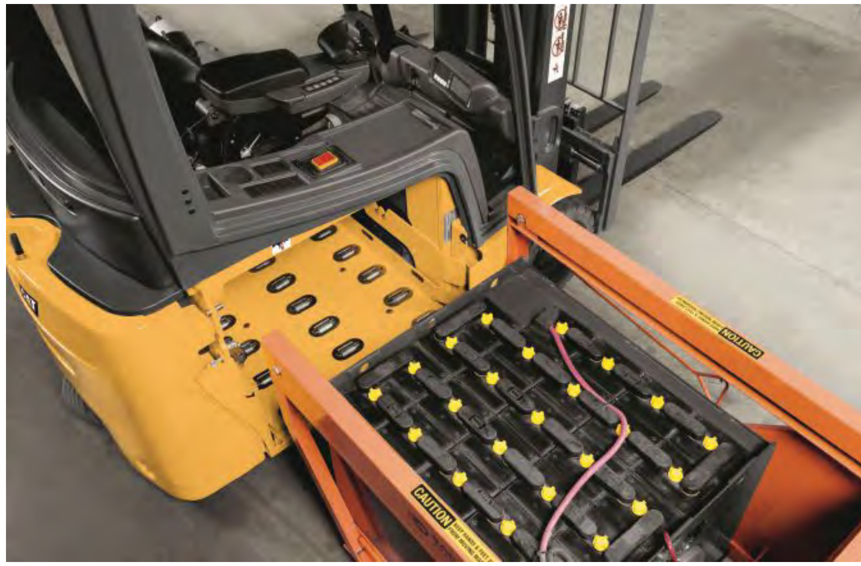
IC lift truck operators accustomed to running tanks dry, swapping them quickly, and heading back to work might face a more extensive list of responsibilities with an electric lift truck. Battery health and productivity can be greatly affected by well-meaning operators who are accustomed to focusing on activities other than checking fluid levels and battery discharge indicators (BDI).

This is why Okamoto recommends managers try to take as much of the maintenance responsibilities as possible away from operators. Let technicians clean batteries, he says, or hold a one-time course where a tech can teach operators proper cleaning techniques and signs of corrosion, even if it is not their responsibility. Quick-watering technologies can also simplify operator tasks and can be stationed next to opportunity charging stations for easy access.

For some, says Rogers, outsourcing maintenance might be the answer. "There are a lot of factors that go into the decision to outsource equipment maintenance that goes beyond the numbers, such as culture and employee relations," he says. "I'm not advocating everyone outsource, but it can help some customers find the lowest-cost solution."

Zero battery change applications

Just five years ago, opportunity charge and fast-charge systems weren't on



Permanent pairings of battery and lift truck can increase visibility into battery health and operator accountability.

most fleet owners' radar. Now they are enabling gradual transitions from IC to electric, transitions away from a battery room, and increased accountability inherent in permanent forklift/battery pairings.

Although Battery Council International offers a technical definition of each, the difference between fast charge and opportunity charge is largely irrelevant to the end-user, says Lynda Stephens, director of information solutions at EnerSys. She prefers to group both under the umbrella of "zero battery change" applications.

An important aspect of specifying battery and charging systems and comparing them as a customer is how to get through sales rhetoric. "One supplier says a 10 kw system will work, another says it can't be done below 15 kw," says Stephens. "If I don't want to spend too much money, or find out my new system is under-powered, who do I believe?," she adds.

Stephens strongly encourages a full energy usage analysis before pursuing zero battery change technology. "The analysis provides a specification for charging times and intervals, at which point you essentially ignore the truck's battery discharge indicator and just follow the program." This can ensure

The IC forklift of the future could include advanced fuel injection systems, more accurate fuel gauges, and simpler, ergonomic tank attachment.

productivity and lead to longer battery life, but it can also cut costs at the time of purchase. "I can sell you a lower power charger if you promise to charge more often," she says.

Deploying the technology as a program as opposed to a product is critical to its success, says Stephens. This entails a cultural shift and strict management of operator habits, but it also informs the purchasing process. Perhaps most important is that the battery provider and charging system provider are working together.

"The customer must act like a general contractor and mediator in that relationship, and therefore 90 percent of everything that goes wrong in fast charging is the customer's fault," says Stephens. "That's why it's so important that it's a program and not a product, with a good deal of self-monitoring."

"Zero battery change" technology can enable gradual transitions from IC to electric, but requires plenty of self-monitoring.

Battery maintenance

Any hiccups in self-monitoring will make themselves apparent very quickly, says Jim Gaskell, director of Global Insite Products for Crown Equipment. "I have visited facilities where customers will say they are definitely plugging in their trucks. We went out on the floor to find four of them unplugged. Tomorrow, when that truck doesn't finish the shift, what are they going to do?"

If a battery isn't properly watered, that can also zap half the battery life for the next shift, says Gaskell. A battery should last through 2,000 charge/discharge cycles. When well maintained in a single-shift, five-day application, that works out to about eight years. Poor treatment won't kill a battery overnight, he says, but it can cut the life to only three or four years.

Joe LaFergola, manager of business information solutions for the Raymond Corp., says reduced battery life is especially concerning because battery prices have doubled in the past few years, from $3,000 to $7,000 or more. "When batteries cost a few thousand dollars, they were almost a throw-away in a $30,000 lift truck," he says. "Now, if the customer is running three shifts, that's almost $20,000 in batteries for each lift truck."

Battery and lift truck monitoring technology

Battery-mounted technology can monitor the battery's charge, discharge, equalization, water level, and temperature, with data points delivered to the manager through a Web-based portal. In zero battery change applications, this technology can also improve lift truck visibility and operator accountability.

In addition, says LaFergola, reports from battery-mounted units can inform battery maintenance or training, and can serve as warranty assurance in the event of a bad battery cell. These systems can add 20 percent to the life of a battery, says LaFergola, providing a six-month ROI.

Truck-mounted fleet management technology can provide a more basic window into battery status in operations where batteries are not changed. These systems might monitor the voltage when the battery is plugged in, and the voltage when it is unplugged. Discrepancies in performance can identify trucks that were left unplugged, or identify failing batteries.

With or without truck-mounted technology, battery management gets easier when the batteries stay in the truck, says Gaskell. "In that case, poor performance sticks out," he says. "The truck doesn't make it through the shift. But if the customer is swapping batteries, that poorly performing battery is just out there somewhere."

Fuel cell electric vs. battery electric

A viable fuel cell application once required all the stars to align: new facility, large fleet, multiple shifts, and access to hydrogen. But, the demographics have shifted somewhat. According to Reid Hislop, vice president of marketing and investor relations for Plug Power, depending on the price of labor and estimated hydrogen consumption, fuel cells can easily accommodate fleets of about 35 lift trucks running two or more shifts.

"We have equal opportunity with brownfields and greenfields," says Hislop. "We are seeing inquiries from folks that are coming to the end of their traditional battery life cycle and are looking at fuel cells. Two years ago, managers asked: 'Why fuel cells?' Now it's: 'Why aren't you looking at fuel cells?'"

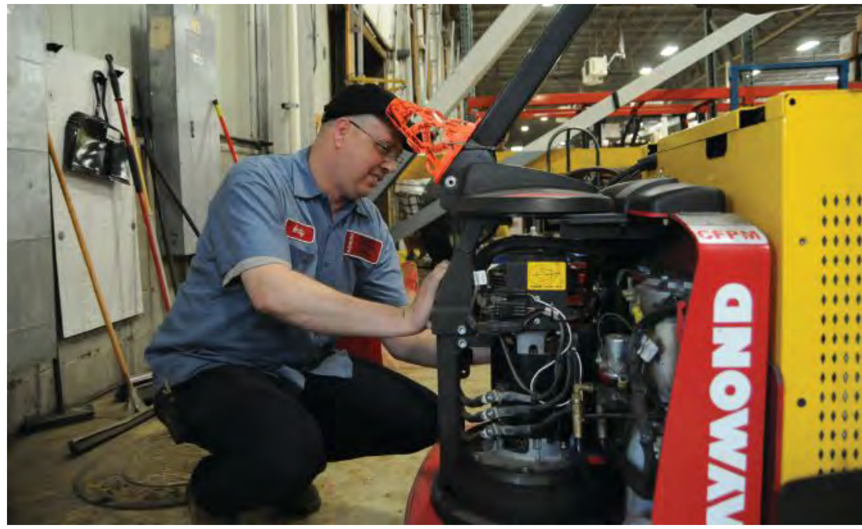
Hydrogen is highly efficient, producing more energy per ounce than any other fuel, says Hislop. A current tax incentive of roughly 30 percent is also available on the price of a fuel cell battery replacement unit through 2016.

More sales will boost overall infrastructure and make fuel cell costs increasingly competitive, says Hislop, and each year shows improvement.

According to Gus Block, director of marketing and government affairs at Nuvera, key obstacles to wider fuel cell adoption include flexible hydrogen supply contracts that can accommodate changing conditions, as well as the limited range of fuel cell product availability.

As a solution to the question of supply, Block's company now offers an on-site generation solution he says is cost-effective at smaller scales, for as few as 10 to 20 reach trucks, 30 to 60 pallet jacks, or some combination. Customers pay a fixed monthly fee and avoid capital investments into infrastructure. This is a popular tool allowing large fleet owners to test the viability of a full-scale implementation by converting only a small segment of the fleet at first.

"There are obvious advantages to just converting the workhorses of the fleet," says Block. "It doesn't have to be an all-or-nothing solution for the stars to align."



Get extra value from service providers and forklift operators by clearly defining responsibilities.

The future of propane

Tucker Perkins, chief business development officer for the Propane Education and Research Council (PERC), says that in terms of propane engines, the industrial forklift market is the group's primary emphasis. According to Perkins, PERC is working on an unprecedented deep study to illustrate the benefits of propane over electric. Results could be released in 2013, but Perkins says the case for IC will only improve in that time.

"The supply picture is radically different than it was four or five years ago. For the next century, we see an abundance of propane, and in the places we always wanted it," says Perkins, referring to natural gas deposits beneath the state of New York. "As a result, we see a favorable price trend. We believe this will be a fundamental, long-term shift."

The shift has been rapid, but its effects can already be felt. Fifteen years ago, about 60 percent of propane came from crude oil, says Perkins. Today, about 70 percent comes from natural gas, which is largely domestically sourced. "Ten years ago we imported 60 percent of our propane demand, and now we are net exporters."

PERC is watching these trends, as well as the trend toward increased electric forklift use. Certain applications benefit more from IC, but some applications have no IC option on the market. "If people make the switch from IC to electric due to factors other than fuel, then we can work with the industry to create products that address that," adds Perkins. "We're already looking at what the next generation of IC forklifts needs to look like."

The forklift of the future might include more accurate fuel gauges, fuel injection systems, and simpler, more ergonomic tank attachment methods. "We're studying hydraulic hybrids and electric hybrids, but advances in conventional engines, informed by the automotive industry, are driving plenty of change."

Josh Bond is an Editor at Large for Logistics Management

Power options quick hits

- As much as possible, avoid running a battery below 20 percent. If necessary, use forklift-mounted devices that provide visual and audio alerts when the BDI reaches 20 percent.
- Ask technicians to properly calibrate BDIs, which can stray from the actual battery charge level by as much as 20 percent.
- Don't fill the battery's electrolytes right before charging. This can cause them to bubble over, creating corrosion.
- Don't connect the battery to a conventional charger during a lunch break, unless you intend to charge it for a full cycle.
- Conduct a detailed lift truck study by application.
- Use a charging system that is temperature-compensated and has the kind of sophisticated controls that will manage battery temperature and will protect the battery during a high-current charge.
- Align charging with off-peak times to get a better electricity rate.