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MAY 2010

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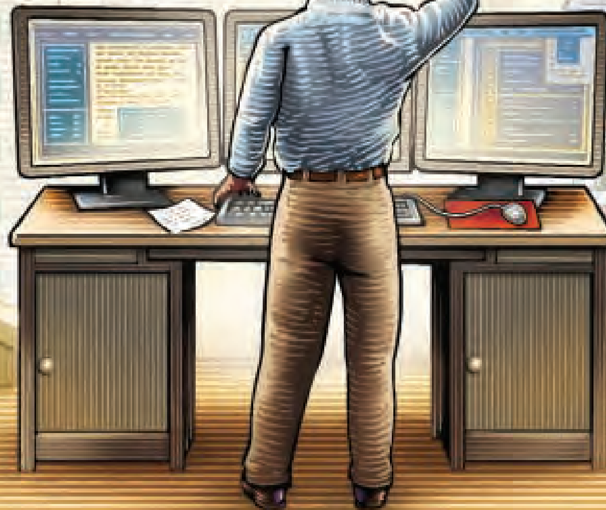
2010 TECHNOLOGY ROUNDTABLE
Perfect Pitch

Page 22



Air cargo rises above the ash 28

WMS upgrade time 41

DC space optimization tips 44

SPECIAL REPORTS:

Top U.S. ports 48S

State of supply chain education 56S

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Management UPDATE

AN EXECUTIVE SUMMARY OF INDUSTRY NEWS

Class 8 vehicle production to pick up. Amidst signs of an improving trucking market, recent data from ACT Research Co., a publisher of North American industry data and forecasting services for trucks and commercial vehicles, indicates that Class 8 vehicle production is expected to grow 14 percent year-over-year in 2010 and then hit a 72 percent annual growth rate in 2011. ACT partner and senior analyst Kenny Vieth said that while improving trends in trucking are a key component of improving commercial vehicle demand, the transition to new EPA 2010 engines will impact the timing of new order and production ramp ups. And with production of trucks with pre-mandate engines continuing into the second quarter, ACT now projects that the trough for heavy-duty truck build will occur in the third quarter before picking up in the fourth quarter of 2010.

Is TNT selling its mail business? Various media reports are indicating that TNT, a Netherlands-based provider of mail and courier services and the fourth-largest global parcel operator, is considering spinning off its mail business. While there is nothing concrete on what the next steps would be, a *Financial Times* report quoted TNT CEO Peter Bakker as saying the spin-off could be completed this year, but he declined to comment on how long TNT would take to make a definitive decision on the fate of the business. Bakker also stated that talks on partnerships with rival postal companies have yet to start. While talk of a potential TNT sale has surfaced every so often over the years, J.P. Morgan analyst Tom Wadewitz added that caution needs to be exercised about reading this event as a certainty. However, he did point out that a long-term combination of TNT Express with UPS or FedEx does make sense considering the geographic strengths and weaknesses of each company.

YRCW cites improving Q1 shipment trends. Less-than-truckload transportation services provider YRC Worldwide (YRCW) reported at the end of April that total shipments per weekday are inching up for its YRC National Transportation and YRC Regional Transportation subsidiaries. For the first quarter, YRCW said total shipments per workday were approximately 42,700 for YRC National and 33,700 for YRC Regional. Total shipments per workday showed sequential gains from January through March for both Regional (up 8.2 percent from January to February) and National (up 9.2 percent from January to February). Even though YRCW saw sequential shipment-per-day gains throughout the first quarter, these numbers are down on an annual basis, with National down 33.5 percent and Regional down 13 percent.

A respectable, but risky recovery. Analysts with trade credit insurer Coface said it has raised its 2010 world growth forecast to 3 percent. Coface, which provides protection for businesses against financial failure by their customers, issued a report in April stating that the United States' A2 rating is under positive watch. Given the strong performance of the U.S. at the end of 2009, Coface analysts revised their forecast upward to 2.3 percent. They warned, however, that the nation still had much to do before reaching its "pre-crisis" A1 rating. Furthermore, said analysts, there is some apprehension of a U.S. business slowdown during the year "due to a weakening of the favorable effects of the budget stimulus." Meanwhile, Canada, Australia, and New Zealand are benefiting from the recovery in Asia, as demand for raw materials is ramping up. All three nations have been given an AI rating by Coface.

Losing steam? More ships arrived at their destination ports behind schedule last year, according to the latest Container Shipper Insight report issued in April from Drewry Shipping Consultants. According to Drewry, of the nearly 1,600 ships tracked in the last three months of 2009, only 53 percent arrived either on the scheduled day of arrival or a day prior. That was down 7 percentage points from the reliability rate in the first three quarters of

continued, page 2 >>

Management UPDATE

2009 and fell below the historic average, which now stands at 55 percent. Drewry added that the increase in unreliability coincides with an increase in the practice of slow steaming. "These results are especially disappointing as we had expected reliability to improve as a consequence of more slow-steaming, which should in theory help matters by creating a buffer in the schedule," said Simon Heaney, editor of *Freight Shipper Insight* and *Schedule Reliability Insight.* "It seems that carriers are not prepared to put their foot down if they fall behind schedule," he said.

■ **Pa. I-80 tolling plan is nixed.** A push by Pennsylvania Governor Edward G. Rendell to put tolls on Interstate 80 was rejected by the federal government last month. This news, coupled with a 2008 effort to privatize the Pennsylvania Turnpike through a deal with Albertis and Citigroup, had previously failed to win approval from Pennsylvania state legislators and federal regulators, the report said. The Federal Highway Administration also rejected the I-80 tolling plan in September 2008 because the planned use of toll revenues did not meet federal requirements. Had it been approved, Pennsylvania would have been the third pilot interstate tolling project permitted under a federal transportation act. It would have added the 311 miles of I-80 to the 5,244 miles of tolled highways and bridges operating in the U.S., according to various reports.

■ **DHL, ABX Air extend relationship.** Express delivery and logistics services provider DHL and airfreight carrier ABX Air struck a five-year deal in which ABX will continue providing aircraft and operating support to the U.S. portion of DHL's international logistics network. Under the terms, ABX will provide 13 Boeing 767 aircraft to DHL as well as operating support to the U.S. portion of DHL's international logistics network. The deal, which covers crew, aircraft, maintenance, and insurance, runs through March 2015 with an option to extend it through March 2020. In conjunction, a seven-year agreement was also signed between DHL and Cargo Aircraft Management, a subsidiary of ABX parent company Air Transport Services Group Inc., which covers the leasing of 13 Boeing 767 freighter aircraft from ATSG.

■ **JAL encouraged but cautioned.** While the International Air Transport Association (IATA) is closely monitoring the restructuring of Japan Airlines, it recently told top management that "tough decisions" will need to be made quickly to cut costs and close the gap with regional competitors. "Japan's expensive airport infrastructure costs impede improved competitiveness and must also be addressed as part of building a successful future for the company," said Giovanni Bisignani, IATA's director general and CEO. IATA fully supports Minister Maehara's vision to increase the competitiveness of Japan's air transport sector with more efficient infrastructure, said spokesmen. To turn the vision into reality, however, "urgent action" is needed to address cost issues.

■ **New Transpacific player.** The Containership Company (TCC), created just last fall, inaugurated its first Transpacific voyage last month. Heralded as "The Great Dragon" service, it got underway in April with its eastbound debut by sailing from the Taicang International Gateway in Jiangsu. As recently reported in *LM*, Jakob Tolstrup-Møller, TCC's CEO, said that this "port-to-port service will appeal to shippers looking for a new partner and a more direct link to the vast inland manufacturing base of the Jiangsu province." The event comes at a time when U.S. West Coast shippers are fighting to find space on inbound and price hikes have been sticking. For the first time since mid-2008, average global container freight rates experienced a year-over-year increase in late 2009, according to the Drewry Global Freight Rate Index.

■ **Keeping faith in forecasting.** If there was a single message presented at the Aberdeen Group's annual Supply Chain Management Summit in San Francisco last month, it was that complacency is no longer an option. "As the economy strengthens, we're examining lessons learned by the past and our conclusion is that more balance must be created in the supply chain," said Juan F. Rubio, vice president of Logistics Resources International and keynote speaker to this year's Summit. "Customer service and inventory policy must be re-scaled to maximize efficiency while continuing to focus on cost," he said. Rubio addressed the session's theme of "Proactive Supply Chain Strategies for 2010 and Beyond" by emphasizing that forecasting will play a crucial role in the realm of customer service and inventory control.

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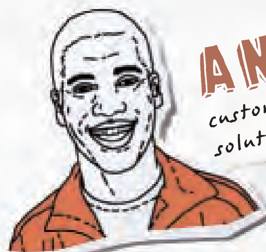

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CONTENTS

MAY 2010 VOL. 49, NO.5

COVER STORY

2010 Technology Roundtable: Achieving perfect pitch

Four top technology analysts come together in concert to sing the praises of the technologies and concepts that they feel can better orchestrate logistics and supply chain operations. 22

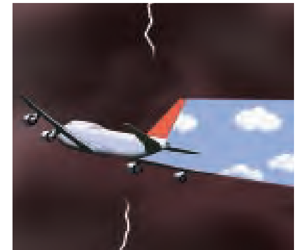
COVER ILLUSTRATION BY JOHN MACDONALD

Logistics MANAGEMENT®

TRANSPORTATION TRENDS

Air cargo forecast: Will a Phoenix rise above the ash?

28 Just when shippers thought the worst was over, flight and service disruptions of volcanic proportions took place this spring. And when European air space finally re-opened, capacity was scarce and even more expensive on almost all trade routes.

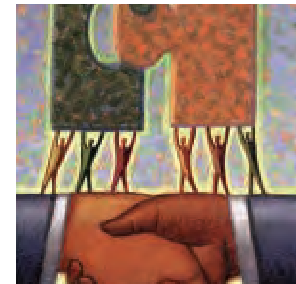


Air cargo forecast 28

GLOBAL LOGISTICS

Global supply chains: The regional dynamic

32 Research into the sourcing potential and practices in Africa, Eastern/Central Europe, and Asia/China reveal big differences—and big opportunities—for supply chain management professionals.



Sourcing potential 32

SUPPLY CHAIN TECHNOLOGY

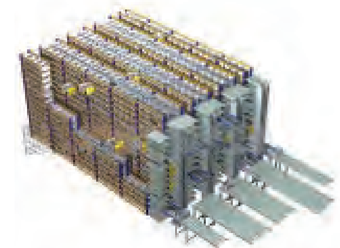
State of WMS: Upgrade time

41 According to our *2010 Software User Survey*, nearly half of all logistics operations using a WMS are looking to upgrade over the next 12 months. We explain why and then learn how Half Price Books revolutionized its warehouse operations.

WAREHOUSE & DC

Space optimization: Mission impossible?

44 We recently shared a few space optimization tricks for using all three dimensions of your warehouse & DC. Now we focus our attention beyond the storage areas to the more critical operating areas. If you're still out of room, it's time to pay attention.



Optimizing space 44

1 Management update
9 Viewpoint
10 Price trends
13 News & Analysis
20 Pearson on excellence
60 Sage advice

Our Pledge to You

Dear Reader,

The May 2010 edition of *Logistics Management* is our first issue published under our new company, Peerless Media, LLC. *LM* joins *Supply Chain Management Review, Modern Materials Handling*, and *Materials Handling Product News* in the group of leading publications now published by Peerless Media.

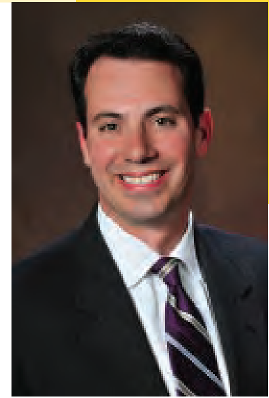
You've come to expect the very best from *Logistics Management*...our award-winning news reporting, best-practice case studies, exclusive industry interviews, targeted economic data, and more. Mike Levans and his editorial team—a staff of veteran writers and nationally known columnists—are committed to not just meeting those expectations, but exceeding them in the months and years ahead.

And while you can continue to rely on us as the "go to" magazine in the field, we plan a series of initiatives to make *Logistics Management* an even more robust source of logistics information. In particular, we're planning major enhancements to our web site (www.logisticsmgmt.com), e-newsletters, and web events. Plus, we have some exciting new online offerings underway that we'll soon tell you about.

As we move forward under an invigorating new entrepreneurial structure, we make this pledge to you: *Logistics Management* will continue to be the most comprehensive and authoritative source of information for today's logistics and supply chain professionals.

Best regards,

Brian Ceraolo
Group Publisher, Peerless Media, LLC

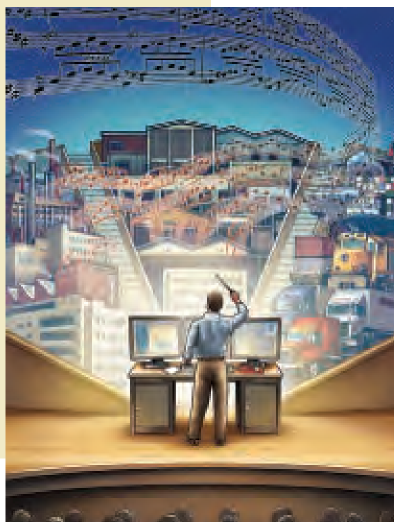


Brian Ceraolo,
Group Publisher

LIVE WEBCAST

2010 Technology Roundtable Webcast: Achieving perfect pitch

Five top supply chain technology analysts join Group Editorial Director Michael Levans to discuss the technologies and concepts that they feel can better orchestrate logistics and supply chain operations. Tuesday, May 25 @ 2:00 ET. Go to logisticsmgmt.com for registration details.



ALSO:

SPECIAL REPORT

State of supply chain continuing education: Measuring the investment

Companies that are investing time and money in supply chain executive education are paying closer attention to the anticipated ROI from this investment. **56S**

SPECIAL REPORT

U.S. ports update: Top 20 remain bullish on future

With the recession just about past, port industry authorities and analysts say that U.S. gateways will most certainly benefit in the short term. But how they'll manage in the long term is up to how well port leaders are executing current infrastructure and services improvement plans. Here's where they stand today. **48S**

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Peerless MEDIA, LLC

VIEWPOINT

LM never missed a beat

IF YOU WORK HARD and play by the rules, chances are you'll experience a few terrific, pivotal moments in your career. I believe I just experienced one of them.

As many of you have already heard, Peerless Media, LLC, has completed the acquisition of *Logistics Management (LM)* as well as the entire Supply Chain Group of magazines—including *Supply Chain Management Review, Modern Materials Handling,* and *Materials Handling Product News*—from Reed Elsevier.

Peerless will operate as a separate division of EH Publishing, a strong, privately held media company best known for its market-leading titles in the consumer electronics, robotics, and live sound markets. I'm thrilled that we have such a wonderful partner to help grow our business; and, of course, am equally overjoyed by the speed at which we were able to close the deal and continue our operations.

In fact, I'll be so bold as to say that we didn't miss a beat—and neither will our readers.

As you turn the pages of our May issue you'll notice that it's been business as usual for the editorial staff of *LM*. And if you glance over at the masthead you'll notice that the same staff, reporters, columnists, and contributing editors have all made the transition with us.

The message to readers is simple: The most trusted business-to-business news and information brand in the market will continue to serve you through the pages of our magazine, timely email newsletters, and 24/7 coverage on the web.

Readers will continue to read the in-depth daily news reporting by Jeff Berman, Patrick Burnson, and John Schulz; best-practice-driven case studies by John Kerr; technology coverage by Bridget McCrea; warehouse and DC research and reporting by our resident engineer Maida Napolitano; and insightful columns by Mark Pearson, Elizabeth Baatz, John Gentle, and Wayne Bourne. To top it off, all of our industry-defining benchmarking and research studies that the industry has come to rely on over the many decades will continue as well.

And in our new entrepreneurial environment, *LM* will be able to exercise even more flexibility in responding to reader needs by launching new features, webcasts, virtual conferences, and data products—in fact, we have several in the pipeline now.

I'd also like to take a moment to thank the many readers and advertisers who sent along their personal notes of "congratulations" when they first heard the news of the Peerless acquisition. I always felt that *LM* and all of the Supply Chain Group publications were deeply rooted in this market, and the overwhelming outpouring of sentiment and good wishes certainly confirmed that feeling.

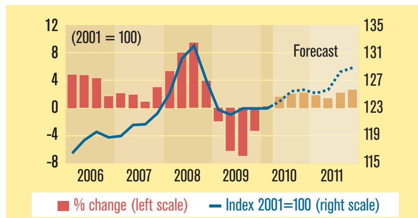
I'm proud to be leading our editorial charge, and I look forward to serving this market and helping our readers expand their knowledge of transportation, logistics, and supply chain operations for many years to come.

And please, feel free to drop me a line any time at my new e-mail address (mlevans@ehpub.com). I look forward to hearing from you.

Michael A. Levans, Group Editorial Director

Comments? E-mail me at mlevans@ehpub.com

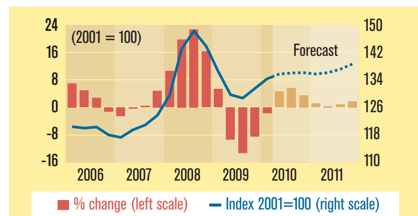
Across the Transportation Modes



% CHANGE VS.:	1 month ago	6 mos. ago	1 yr. ago
General freight - local	-0.4	-0.4	3.0
Truckload	-0.2	0.1	0.3
Less-than-truckload	0.3	-0.8	-1.2
Tanker & other specialized freight	0.2	1.3	3.7

TRUCKING

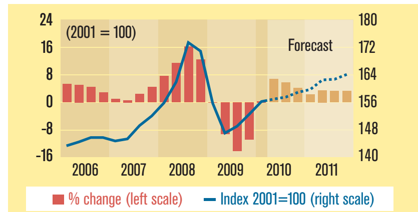
Following February's 3.7% price jump, LTL companies reported another 0.3% price hike in March. That extra month of data, plus three quarters in a row of inexorable price increases reported by U.S. rail carriers, tentatively tracks the trajectory of our current LTL price forecast. We see a gradual shoring up of LTL prices in 2010 followed by at least a 2.6% price increase in 2011. After 2008's fuel-injected price skyrocket, the coming inflationary trend should behave more predictably, even as new fuel surcharges enter the picture. By the final quarter of 2011, LTL prices will end up just 0.7% below the last price peak set in the second quarter of 2008. Truckload carriers, however, will struggle to increase tags. TL price will end 2011 still 5.7% off its previous 2008 peak.



% CHANGE VS.:	1 month ago	6 mos. ago	1 yr. ago
Scheduled air freight	-0.4	4.3	2.2
Chartered air freight & passenger	9.1	3.4	6.9
Domestic air courier	1.0	7.0	12.3
International air courier	2.7	6.2	9.6

AIR

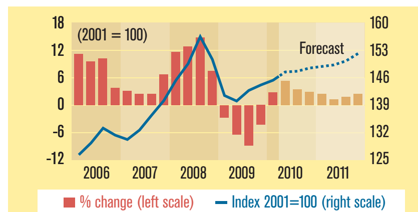
The U.S. airlines imposed new fees for stowing passenger luggage, but luckily for logistics managers, flying freight in the belly of the plane did not suffer the same fate. Indeed, transaction prices for air freight on scheduled flights dropped 0.4% in March. In the first quarter of 2010, prices fell 1.6% from a year ago. Less drastic than the 13.2% year-ago price cut airliners were forced to swallow in the third quarter of 2009, this latest price point represented an unprecedented cyclical low point in airfreight price de-escalation. U.S.-owned charter planes, meanwhile, in the first quarter of 2010, raised prices for domestic services by 11.3% from a year ago and lowered prices for international services by 9.8%. Prices for air cargo service on scheduled flights are forecast to increase 3% in 2010 and 1% in 2011.



% CHANGE VS.:	1 month ago	6 mos. ago	1 yr. ago
Deep sea freight	0.1	5.3	1.6
Coastal & intercoastal freight	2.1	6.1	13.5
Great Lakes - St. Lawrence Seaway	0.0	8.2	-11.6
Inland water freight	-8.1	-8.2	-11.8

WATER

Inland water transportation companies reported an 8.1% price cut in March 2010. And that was before the BP oil rig disaster at the end of April. For the quarter ending March, prices for inland water freight service fell 7.7% from the same quarter a year ago as prices charged by U.S.-owned deep sea freight companies also declined 1.2%. Swimming in the opposite direction, coastal and intercoastal freight prices surged 7.8% and Great Lakes-St. Lawrence Seaway freight transportation tags increased 6.2% over the same time periods. The overall water transport price forecast remains: 4.2% increase in 2010 and 3.1% in 2011. When new cost analysis from ALERTdata joins this forecast in coming months, we'll see how much more accuracy we can bring to the outlook.



% CHANGE VS.:	1 month ago	6 mos. ago	1 yr. ago
All rail transportation	0.7	1.5	4.3
Intermodal rail freight	0.5	2.1	7.2
Carload rail freight	0.6	1.4	4.1

TRUCKING

If rail industry pricing says anything at all about how the economy is doing, then the U.S. recovery is chugging along on the right track. Marking the ninth monthly price hike over the past ten months, rail operators report that average transaction prices increased 0.7% in March 2010. Intermodal rail tags grew by a solid 5.8% in the first quarter of 2010 from a year ago. Carload transaction prices likewise gained 2.6% in the same time frame. Basically, our rail price forecast shows average prices traveling upward on a slope akin to the 2003 to mid-2004 price inflation slope. Even after projected annual price increases this year and next of 3.6% and 2.0%, respectively, rail prices in the final quarter of 2011 will still sit 2.7% below peak price levels set in the third quarter of 2008.

Source: Elizabeth Baatz, Thinking Cap Solutions. E-mail: ebaatz@alertdata.com

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inside

• FMCSA delays new truck driver-rating system, p. 14

• Has the time come for a U.S. infrastructure bank? p. 17

DOT unveils plan to expand America's marine highways

Advocates say the push to increase short-sea shipping has the potential to improve supply chain operations and benefit other modes of freight transportation

By Jeff Berman, Group News Editor

WASHINGTON—Long overlooked as a viable alternative to over-the-road transportation, United States Department of Transportation (DOT) Secretary Ray LaHood last month announced the inception of "America's Marine Highway" program, an effort to shift freight to waterways from congested U.S. highways.

As part of this initiative, the Department of Transportation's Maritime Administration (MARAD) will help to identify rivers and coastal routes that could carry cargo efficiently, bypassing congested roads around busy ports and reducing greenhouse gases, according to DOT officials.

This announcement follows $58 million in grants for projects supporting the start-up or expansion of Marine Highway services, which were awarded through the DOT's TIGER grants program. Congress also has allocated $7 million in grants that MARAD will award later this year.

The concept for a national Marine Highway program was conceived from a 2007 law that required the Secretary of Transportation to establish a short-sea transportation program and designate short-sea transportation projects to mitigate surface transportation, the DOT said.

Under "America's Marine Highway" program, regional transportation officials will be able to apply to have specific transportation corridors and individual projects designated by the DOT as a marine highway, provided they meet certain criteria. And once projects are designated, the DOT said that they will receive preferential treatment for any future federal assistance from the DOT or MARAD.

In his comments at the North American Marine Highways and Logistics Conference in Baltimore, LaHood said that "for far too long we've overlooked the economic and environmental benefits that our waterways and domestic seaports offer as a means of moving freight in this country. Moving goods on the water has many advantages: It reduces air pollution. It can help reduce gridlock by getting trucks off our busy surface corridors."

Several experts in the short sea shipping sector lauded the news regarding the new marine highway program.

DOT's "America's Marine Highway" initiative aims to relieve highway congestion and reduce related air pollution.

Short-sea continued

"This is a landmark transportation policy statement in my opinion that will finally put the full force and support of the U.S. Government behind this important initiative," said Mark Yonge, managing member of Fort Lauderdale, Fla.-based Maritime Transport & Logistics Advisors LLC, and vice-chair of the Coastwide Coalition.

"With this announcement, America's marine highways are now acknowledged as an integral part of the country's intermodal system," Yonge said. He also pointed out that this should be very comforting to all logistics providers and shippers now that the economy is getting back on track and transportation demand is once again growing.

"Although the new funding commitments may seem small, the fact that marine highways are now an important part of our transportation system will, hopefully, open the minds of the financial markets, shippers, 3PL's, the trucking industry, and others to accept marine highways in that light," added Yonge.

Wayne McCormick, owner and webmaster for AmericasMarineHighways.com, an advocacy site for the marine highway program, said that this effort will help mitigate congestion at a lot of different trucking choke points throughout the country and reduce pollution levels as well.

McCormick also pointed out that even though there is only $7 million currently available in MARAD grants, he said it is a "down payment" on the future of the program. He added that the initiative will develop future generations of operators to come forward and really start to develop it on a larger scale.

Former MARAD Administrator and current Secretary of Transportation for Virginia Sean Connaughton told *LM* in a 2007 interview that marine highways could be successful in moving primarily ocean-going containers out of ports and around bottlenecks to deliver cargo containers closer to their destination port.

"The focus is on where we can potentially take ocean containers that come off the largest deep draft vessels and then deposit them near an Interstate where they can be picked up by trucks and taken to their final destination," said Connaughton. "This can also help with truck driver staffing levels and help reduce fuel expenses, because a barge can hold several hundred containers at a time." ☐

TRUCKING

FMCSA delays new truck driver-rating system

WASHINGTON—The federal government's proposed Comprehensive Safety Analysis of how it rates trucking companies and drivers is being delayed, much to the relief of the trucking industry, which recently pointed out many flaws in the new rating system.

Dubbed CSA 2010, the new program is now going to be rolled out in phases, starting Nov. 1 and continuing into next year—so the program will effectively become CSA 2011. According to Lana Batts, partner at Transport Capital Partners: "Anytime you name a project after a year you're setting yourself up to fail. The Department of Transportation has never met a deadline yet, which makes you wonder why they did it."

Shippers should be concerned about the new safety-rating program for one major reason: It could raise their trucking rates. That's because the program potentially could reduce the available driver pool by as much as 7 percent, thus reducing truck capacity at a time when the economic recovery is expected to stress the already reduced over-the-road capacity of many fleets.

"As capacity tightens and if 6 percent to 7 percent of current drivers will be ineligible under a new rating system, that will simultaneously affect capacity and rates," Batts said. The Federal Motor Carrier Safety Administration (FMCSA) decided to delay implementation of the new system after alarm bells were rung by the trucking industry over fairness concerns.

"We're encouraged because this gives FMCSA a little more time so there won't be any unforeseen problems with the rollout of this program," said Clayton Boyce, a spokesman for the American Trucking Associations (ATA). The program now starts Nov. 1. At some point in 2011, driver scores will be available to all trucking companies in their hiring and screening process.

However, ATA specifically cited three problems:

1. *When CSA reports crashes and figures out its scores, it does not take into account who is actually at fault in the crash. A trucker who is rear-ended is scored the same as the trucker who actually causes the crash.*

2. *The way CSA figures risk exposure is based on comparing safety records by the number of trucks a fleet operates. A more accurate rating would be based on the number of miles driven, ATA said.*

3. *Warnings are treated no differently than actual violations. The ATA would prefer warnings and warning tickets that not be counted in the safety rating process.*

CSA is based on a system that uses more than 2,200 different variables in accidents. FMCSA tried to weigh those variables to devise a system to rate fleets and drivers. But critics have commented that because the FMCSA accident sample size was small, having a flapping tarp on a flatbed was weighted more heavily than running a stop sign.

"It's one thing to discus the theoretical of an accident," Batts said. "It's something entirely different when you get actual scores from those ratings."

The upside of the delay is twofold: DOT can fix some of these issues that have been raised. And it gives the trucking fleets time to understand the new system and how it can affect their capacity and ability to hire competent drivers.

"Clearly there are a lot of guys who haven't a clue right now," Batts said.

New driver rating system could take as many as 7 percent of current truck drivers off the road.

Results from a recent Transport Capital Partners' (TCP) survey of truckload carriers showed only half of the carriers were ready for CSA 2010. TCP, a leading firm in transportation mergers and acquisitions, uses the quarterly survey to collect the insights and opinions of executives nationwide in order to report on the current state of the truckload industry and future expectations.

TCP's survey showed that only half the carriers had reviewed their SafeStat numbers to understand what FMCSA will be reviewing. About one third had already made changes in their safety programs based on these reviews, according to Richard Mikes, a managing partner for TCP.

"Larger carriers appeared to be further along in preparing for changes than smaller carriers, and delaying the implementation of the new regulations will address some carrier concerns and allow time for better understanding and preparation," said Batts.

The survey found that 41 percent of respondents expect to change the way they monitor sub-performing driving and 29 percent have already changed hiring standards.

CSA 2010 is intended to reduce accidents, injuries, and fatalities. Annual truck inspections and preventative maintenance records will be required along with historical documentation. The idea is that less-than-compliant fleets will be exposed, and their trucks sidelined. Those with poor numbers will be more greatly exposed to truck fleet compliance and roadside inspections, the government said.

One big change coming is that a truck driver's driving records will now stay with that driver as he moves through different companies. Previously, when a hiring carrier went to check out an applicant, the carrier never got to see what that driver did on the road. Now those records stay with that driver for three years.

"That's a good thing," Batts said. "The driver can't just change jobs and start with a clean slate. It not only affects his job, but it affects his career. If he's sitting there with 200 points on his or her license, nobody will hire that driver."

The new rating system potentially could reduce the available legal pool of drivers by 6 percent to 7 percent, according to trucking industry sources.

Drew Anderson is director of sales for Vigillo LLC, Portland, Ore., a technology company that manages data and presents it in an easy-to-digest formula for fleets. It has signed up 1,200 fleets and has analyzed how the new system might impact trucking capacity.

Out of the 500,000 drivers from 1,200 fleets Vigillo has analyzed, Anderson said there are 6 percent of drivers with a rating "score" higher than 90, which would likely make them ineligible under the new safety rating system.

–John D. Schulz, Contributing Editor

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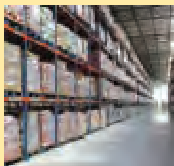

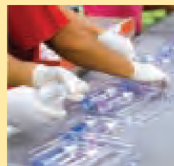

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FINANCE

Has the time come for a U.S. Infrastructure Bank?

WASHINGTON—A former Transportation Secretary and several top transportation policy leaders are backing the idea of a U.S. infrastructure bank to help increase funding of badly needed highway and bridge projects.

"The needs are great, and getting greater, and more funding is not coming," said Norman Mineta, who served as Transportation Secretary in the first Bush administration and is currently vice chairman of global communications consultancy for Hill & Knowlton, a public relations firm.

Can the United States create an infrastructure bank? There are hurdles, Mineta said, but they are not insurmountable. Chief among them is how to financially "score" such projects so they are fiscally responsible and paid for without increasing the national debt.

Acording to Mineta, Congress must maintain the primary role in funding. Transferring large amounts of discretionary funding from Congress to another entity has "very little chance of approval," he said, adding that while he was transportation secretary he "would have loved to have access to a large amount of discretionary funding, but Congress would never go for it."

Instead, Congress must work with private funding sources, which are increasingly being seen as an answer to U.S. infrastructure funding needs. "I believe we can create a national infrastructure bank if its primary purpose is to leverage private investment into projects that are critical to our national infrastructure," Mineta added.

He favors creating a separate entity, with a board that sets lending policy, but lets the decisions on which projects gets funding to experts. It should not be a profit-making venture, he said. "The bank should not be seen as a 'Trannie Mae,'" Mineta said, referring to the scandal-ridden Fannie Mae and Freddie Mac, which required billions in bailout money to help rescue the federally backed home loan sector.

Still, a U.S. transportation infrastructure bank "has the potential to play a powerful role to meet the unmet transportation needs while providing new jobs and economic stimulus," he said.

Congress must work with private funding sources, which are increasingly being seen as an answer to U.S. infrastructure funding needs.

Infrastructure banks are commonplace in other countries, especially in Europe where they are supported by dedicated funding sources. They make low-interest loans directly to localities for infrastructure projects. Supporters say they eliminate time and red tape from the funding process.

Their appeal may be catching on in this country. Already, some in Congress are calling for their creation. Infrastructure banks could also be used to expand telecommunications, broadband capacity, wastewater distribution facilities, and improving other U.S. projects' needs.

In fact, President Barack Obama's proposed 2011 budget includes $4 billion to create a national infrastructure bank to provide a source of funding for infrastructure needs. This comes at a time when many experts are saying that the U.S. must start thinking outside the box of traditional funding.

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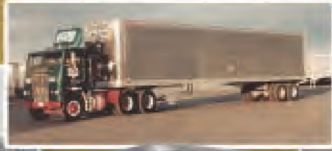

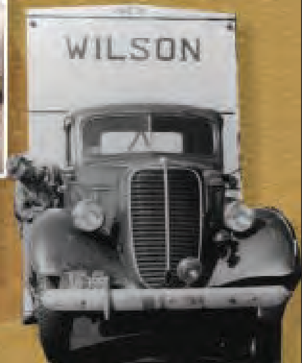

"This is something holding up a major surface transportation bill," Mineta said. "We can't have these two-month, three-month, or five-month extensions. The critical factor in moving that surface transportation bill forward is how is it going to be funded."

Robert Poole, director of transportation policy at the Los Angeles-based Reason Foundation, a libertarian-leaning think tank, said the nation suffers from both insufficient and poorly targeted infrastructure investments.

"Multi-state projects are particularly hard to fund under the current system," Poole said. "Large, billion-dollar, multi-state, multi-modal projects would be particularly attractive to funding through infrastructure bank funding."

But Poole is opposed to using general U.S. funds for transport projects. Rather, he said, they should be funded by user funds, not federal grants. All projects should be merit-based, which could be difficult in a town where all 538 members of Congress are used to bringing home some bacon to their districts and states.

"There may be a niche market role for a narrow transportation-only infrastructure bank," Poole said. "But a broader infrastructure bank may be too ambitious to try and achieve a multi-modal, grant-and-loan-based bank, which I think might fail," he added.

Bryan Grote, co-founder of Mercator Advisors, a financial advisory firm that works with sponsors of infrastructure projects, said the bank's appeal would be to more effectively utilize revenue into commercially viable projects.

"Designing the bank would be difficult, but implementing it would be a major challenge," Grote said. "It probably can be a useful step. But it's important that it be given the expertise and backing to ensure this entity is doing a better job in providing assistance in a better way. The primary problem is a lack of revenue, not a lack of access to capital markets."

Michael Lind, policy director of economic growth programs for the New America Foundation, said the idea of an infrastructure bank is not new. The U.S. Chamber of Commerce recently unearthed a document from 1983 calling for such an idea for alleviating congestion at West Coast ports and Midwestern railroad hubs. Those bottlenecks remain today.

"If there are a relatively small number of mega-projects that everybody agrees need to be built, why not just do it?" Lind asked. "Wouldn't it make sense to do that as a grant, and the American people are taxed to pay for it?"

—John D. Schulz, Contributing Editor

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EXCELLENCE

Pearson on

Transportation in the fuel-challenged century

BUSINESS PROSPECTS ARE improving. However, companies are still under terrific pressure to hold down costs. Many have done an admirable job, but continue to be daunted by one of our time's most-vexing cost-management challenges: wildly fluctuating oil prices.

The problem, of course, is that most supply chains were designed in an era of lower and relatively stable fuel prices. Global sourcing and manufacturing decisions traded off longer transport distances for cheaper labor. Inventories were kept lean, with materials shipped in smaller batches via faster but more fossil-fuel-intensive modes. Distribution models emphasized consolidation, with fewer facilities and longer transport distances. Each of these supply chain strategies depended on—and assumed—reasonably priced fuel.

Unfortunately, "reasonably priced" (or even "predictably priced") oil is unlikely to be part of the global economy's future. For one thing, world oil production could peak by 2011 and oil prices will almost certainly rise in response. Several decades later, our planet could run out of practically-accessible oil. Great stores will remain, but prices will have to rise just to cover the cost of extraction. Then there is the issue of sustainability: Green requirements are prone to increase the cost and complexity of using carbon-based fuels.

Transportation, of course, is the supply chain function most directly affected by fuel-related issues; so here is a look at what transportation-related shifts might help shippers avert problems and seize opportunities associated with short-term price volatility and long-term price escalation. Then, in the June issue, we'll examine what actions might be advisable for other supply chain functions: network design; planning and forecasting; sourcing and procurement; and distribution and warehousing.

Fuel cost swings may result in a new transportation paradigm

Traditional Transportation Priorities

- Just-in-time inventory strategy
- Maximum transport speed
- Local sourcing/buying of transportation services
- Low-cost country material sources trump high transportation costs

New Transportation Priorities

- Slower, cheaper transportation
- Better capacity utilization
- Company-wide approaches to sourcing/buying transportation services
- More use of shared services and third parties
- Near-shore material sources to reduce costs

TACKLING TRANSPORTATION

Responding effectively to the challenge of perpetually pricy petrol, shippers may need to revisit and potentially revamp their transportation strategies. Virtually every aspect—from asset ownership to carrier relationships to customer service—belongs on the table, with priorities that most likely include:

Lower-cost modes: To one extent or another, shippers may need to move from fuel-intensive modes (e.g., road and air) to slower but more economical choices, such as rail and water. Better planning, timing, inter-company collaboration, and even philosophical changes may be needed to accommodate slower modes of transportation.

A tighter focus on utilization: Most companies should consider re-examining their operating models and transportation paradigms. Some may conclude that realigning customer/store-service contracts is needed—pushing, for example, for more factory-direct shipments, larger inventory minimums, or wider delivery windows that let the shipper hold freight until a truck is full. Two or more organizations might also work together to consolidate shipments to low-density areas.

Smarter ways to buy: Companies could determine that maximizing volume with one carrier is

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not the best policy in an era of runaway fuel prices. Instead, an entity might use an elite carrier when on-time delivery is key, and a low-cost carrier when delivery timing or accuracy are less important.

Thinking differently about transportation assets: Oil price cataclysms could make many private fleets less justifiable—replaced by commodity transportation providers or third-party logistics services providers that can minimize costs by running full truckloads, minimizing one-ways, and amortizing investments over a larger asset base.

LEVERAGING TRANSPORTATION TECHNOLOGY

Worldwide fuel woes enhance the desirability of advanced transportation technology. Take GPS telematics—enabling companies to track vehicle locations in real time. The principal benefit is that by optimizing dispatching and routing capabilities, total miles traveled can be reduced.

Telematics also makes it possible to remotely monitor speed, breaking, gear-shifting, idle time, and out-of-route miles, all of which can result in greater fuel economy. Research shows that telematics can reduce fuel consumption by up to 14 percent while paring vehicle-maintenance costs by roughly the same amount.

Several decades later, our planet could run out of practically-accessible oil. Great stores will remain, but prices will have to rise just to cover the cost of extraction.

Allowing carriers to understand and electronically view shipper needs could be a similar priority. With higher visibility, carriers may be able to submit pricing offers based on capacity guarantees from shippers. And guaranteeing capacity is one way for shippers to reduce costs, since it allows carriers to effectively plan routes and maximize equipment utilization and staffing, while limiting the amount of empty miles.

Non-IT innovations should also become more desirable. Good examples include wide-base tires and automatic tire-inflation systems, which minimize roll resistance and aerodynamic drag.

The U.S. Environmental Protection Agency believes that using wide-base tires on a long-haul truck can save more than 400 gallons of fuel per year. Low-viscosity lubricants can create similar benefits. Advances in tractor-trailer aerodynamics also affect fuel consumption.

MOVING AHEAD

There is never a bad time for companies to review, and seek to optimize, their supply chains. But with fuel prices so worrisome, reassessing transportation is doubly important. Next month we'll explore fuel-savvy strategies for other supply chain processes.

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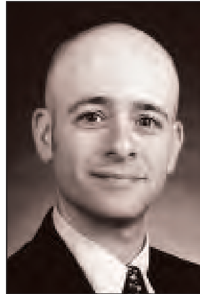
Achieving Perfect

BY **MICHAEL LEVANS**, GROUP EDITORIAL DIRECTOR

Four top technology analysts come together in concert to sing the praises of the technologies and concepts that they feel can better orchestrate logistics and supply chain operations.

JOHN MACDONALD

Pitch


Adrian Gonzalez

Greg Aimi

Dwight Klappich

Jim Morton

When we announced the results our *2010 Software Users Survey* last month, we knew that we weren't about to send any seismic shockwaves through the market. In fact, I'm sure the results didn't surprise anyone.

Our 346 respondents told us that their spending was down or flat across most supply chain software categories over the course of 2009, while their purchase expectations for 2010 are lower than they were last year. They also validated our findings from our 2009 survey that more and more shippers are slowly but surely turning to Software as a Service (SaaS) in lieu of purchase-and-install.

And this is coming from a pretty progressive bunch. In fact, 88 percent of our 2010 respondents are currently using supply chain software, while 75 percent say they plan to buy or upgrade this year—this is up from 73 percent and 64 percent, respectfully, in 2009.

But while this savvy bunch is busy upgrading and tweaking their existing technology strategies, our panel of four top technology analysts tell us that even this group may not be putting their existing technologies to their fullest use—or even using the proper platform or vendor mix that makes the most sense for their operations.

Over the next few pages, our panel will explain the latest developments in transportation management systems (TMS) and warehouse management systems (WMS), and then help shippers understand the growing need for supply chain organizations to do a better job of orchestrating and synchronizing processes and activities across warehousing, transportation, and manufacturing.

To achieve this perfect harmony, we've turned to Adrian Gonzalez, analyst and director of *Logistics Viewpoints* at ARC Advisory Group; Greg Aimi, research director at AMR Research; Dwight Klappich, analyst and research vice president at Gartner; and Jim Morton, senior manager of the supply chain practice at Capgemini. Here's what they had to say.

TMS: KEY TO THE NEW ECONOMY?

Logistics Management: *Our 2010 Software User Survey indicates that TMS adoption hovers at 36 percent. With everything we've written and discussed in webcasts around its advantages, why does this number remain so low?*

Adrian Gonzalez: The low adoption of TMS is surprising. The short answer is that despite all of the known benefits of implementing a TMS, many companies simply wait until they reach a breaking point to take action. In many cases, the breaking point is the decision between hiring a lot more people to scale their transportation management operations and investing in a TMS.

It's just like people who don't start eating more healthy foods or start exercising more regularly until they have a heart attack. Many companies wait until their transportation operations have a "heart attack" before they invest in a TMS.

LM: *Yet the TMS market continues to grow, correct?*

Gonzalez: Before the financial crisis hit in late 2008, the TMS market was growing about 7 percent per year. The market was negatively affected in 2009, as was much of the software industry, although it fared better than most other software segments. The TMS market showed signs of recovery in late 2009. We expect this recovery to continue and strengthen in 2010 and beyond as companies continue to prioritize IT investments that can deliver cost reductions and productivity improvements quickly, which TMS solutions, especially SaaS offerings, are capable of producing.

LM: *Are you finding that there's greater TMS adoption in the larger organizations (say $1 billion to $5 billion in sales) than the smaller organizations (say $5 million to $10 million in sales)?*

Gonzalez: The early adopters of TMS, which represent the largest share of the market, are Tier 1 companies—those with over $1 billion in annual sales. However, the mid-market companies—with revenues between $250 million and $1 billion—represent the fastest growing segment of the TMS market. In general, scale and complexity of transportation operations are the biggest differences between large and small companies.

But there are small companies that have global and complex transportation requirements, while some large companies have relatively simple transportation networks. In other words, when it comes to implementing a TMS, it's not a company's annual revenues that matters the most, but the scale and complexity of their transportation operations.

LM: *We predicted early on that the SaaS*

model would go a long way in closing the gap in TMS implementation. From your perspective, what level of impact has SaaS made on the TMS market so far?

Gonzalez: SaaS has had a very large impact on the TMS market. Based on the results of our annual market study, vendor revenues from subscription and transactions fees have been growing in double digits, while license revenues have remained flat or have shrunk.

Therefore, it's not surprising that more than 85 percent of the TMS vendors we surveyed last year ranked subscription and transaction fees as the fastest growing revenue segment over the next five years—up from 56 percent of the vendors in our 2008 survey. Simply put, SaaS is an attractive deployment and pricing option for many companies, both large and small. Overall, SaaS has opened the door for smaller shippers to implement a TMS—they just have to walk through it.

LM: *In our January issue we went as far as saying that "TMS is the key to the new economy." Does your research match up with our bold proclamation?*

Gonzalez: Absolutely. When you look at everything that will or could affect transportation management in the years ahead—infrastructure constraints, high fuel prices, carbon emissions regulations, capacity constraints—it's clear that companies have to innovate the way they manage their transportation operations. Technology is what enables process innovation and TMS will be a critical component, along with other technologies, such as GPS, cellular networks, sensors, mobile devices, business intelligence and analytics, as well as social media.

WMS: IS SaaS THE ANSWER?

LM: *We're just now hearing about a few providers who are taking the SaaS route with WMS. Why has there been a lag time on the WMS side in terms of development and adoption?*

Greg Aimi: WMS systems have been very customized historically. The idea of a WMS that could run more than one warehouse let alone more than one company's warehouses is only a few years old. In the beginning, the one-WMS-per-warehouse was driven by the need for customization and technological connectivity shortcomings.

Companies couldn't risk not being able to ship because of connectivity to some corporate database or server. Also the idea of having RF data being sent over a network was unfathomable. This led to a WMS-per-building approach that has eventually been replaced by the centralized multi-warehouse single WMS once LAN/WAN networks became more reliable and less expensive to run and the base software functionality became more mature.

SaaS is an attractive deployment and pricing option for many companies, both large and small. Overall, SaaS has opened the door for smaller shippers to implement a TMS—they just have to walk through it.

LM: *So, how does SaaS differ from the centralized approach?*

Aimi: Centralized WMS is "hosted" by the corporate IT department for the entire corporation or a division today; but this WMS is owned and implemented especially for that company and operates behind the company's firewall. The idea of a software vendor being able to arrange and offer to host the WMS for a company is easily adapted from this prior internal model. But, that's not really what people mean when they say SaaS.

SaaS usually refers to a single instance of software available over the Internet whereby all customers and users run on the same software albeit configured differently for each customer. Of course, the SaaS model is also associated with a financial model that is expense-based and built on some type of usage model like transactional volume or subscription fees.

LM: *What are some of the biggest benefits of SaaS WMS?*

Aimi: If you think about how I just described a typical SaaS application, SaaS WMS should be no different. That is, the system is already installed, running, and available over a standard Internet connection. It simply needs to have master data loaded and to be configured to support the customer's specific warehousing processes—so speed to value or faster implementations should certainly be one of the values.

Of course, the vendor also takes on the continuous IT management of the system, leaving only the integration to back office business systems to be managed by the customer's IT team. Usually annual maintenance fees provide the customer with regular upgrades and releases that need to be installed when using a deployed WMS.

LM: *What are some of the biggest drawbacks of going the SaaS route with WMS?*

Aimi: Well, just look at the vendors that are offering pure-play SaaS WMS offerings. They're all relative startups. Quite frankly, I think the organization that's considering SaaS WMS today better have only the most basic of basic warehousing requirements (receiving, putaway, pick, pack, and ship) if they think these new systems are going to support their business.

Software maturity is not unlike having a baby—you can't rush a natural process. The price is going to be very attractive when put beside the other traditional alternatives, but the buyer must be careful that they match their requirements to real capabilities that are truly available in the software.

LM: *Is there an ideal company size that's a perfect fit for a SaaS WMS?*

Aimi: I think alignment with SaaS WMS has very little to do with company size and more to do with inventory characteristics and internal processes that a particular facility requires. The relative newness of these offerings means that they can only support a set of basic capabilities; but I've seen some of the largest companies in the world have a set of warehouses that have

pretty basic requirements but still want to automate those facilities.

One very large company I worked with had over 100 parts depots across North America whereby they wanted to be able to know, at all times, what inventory they had on hand, where it was, and fulfill simple orders in an accurate manner when needed. That scenario was perfect for one of the SaaS WMS offerings.

LM: *What are the key questions that warehouse/DC managers have to consider before jumping in?*

Aimi: There are several, and they're critical: How special or complex are my warehousing and fulfillment requirements? Do I think they stretch beyond basic capabilities? Am I sure that I know all the process flows that are necessary in my warehouse so that I can compare them with the capabilities of the few SaaS offerings available? Would I be better off getting one of the traditional warehouse systems but arranging to have it hosted and get a subscription pricing agreement from the vendor? Once you have these answered you should have a better idea of what direction you're going to go.

WHAT IS SUPPLY CHAIN EXECUTION CONVERGENCE?

LM: *In a recent paper you took a closer look inside the concept of "supply chain execution convergence." Can you briefly define the basics behind this approach?*

Dwight Klappich: Most supply chain organizations continue with functional silos—warehousing, transportation, manufacturing—with minimal, if any, process integration and synchronization between execution application silos. Leading-edge supply chain management (SCM) organizations are beginning to break down application boundaries in order to drive greater levels of value.

These organizations are pursuing a new model that we're calling "supply chain execution (SCE) convergence." SCE convergence refers to the growing need for supply chain organizations to do a better job orchestrating and synchronizing processes, subprocesses, and activities across warehousing, transportation, and manufacturing functional domains.

More precisely, leading-edge supply chain organizations want to support end-to-end processes, such as end-to-end fulfillment, where a process spans traditional functional and application boundaries, and activities can be orchestrated without regard for functional domains or application silos.

LM: *What benefits can supply chain organizations realize from this approach?*

Klappich: While process orchestration and optimization within functional silos has delivered value in many cases, the next wave of value will require cross-silo process integration, namely the ability to orchestrate an end-to-end process such as order-to-cash.

It's important that SCM organizations recognize that this next level of business value will come from breaking down silos by assembling com-

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posite processes that bring together subprocesses and activities from specific domains, then allowing the user to assemble these into a larger, converged end-to-end process. Remember, SCE convergence is not a process improvement strategy. It's far more a process transformation strategy where leading edge organizations look for revolutionary not evolutionary process improvements.

LM: *What is the first step for organizations that want to move toward convergence?*

Klappich: SCM organizations have been able to use their current SCE portfolios to achieve some process improvements, normally targeting and removing things like excess inventory or poor productivity. However, to take it to the next level will require organizations to coordinate and synchronize end-to-end processes like selling, buying or making, which again will require that SCE capabilities "converge" across or between traditional SCE functional silos.

LM: *How would an organization go through this process of filling the gaps and laying out a new plan?*

Klappich: Supply chain organizations with pre-existing SCE portfolios can start with analytical convergence, possibly looking at layering a BI application across their existing applications that aggregates information and presents it in an end-to-end view of their supply chain. While this will provide some near-term value, SCM organizations should also consider SCE convergence as they define their longer-term SCM application strategies.

LM: *What would a successful operation look like/act like once it's gone through an execution convergence transformation?*

Klappich: While an order is being taken, the system could reach into transportation to pre-route the shipment, determining the best mode of transit. The various options could be priced, and the results could be presented back to the customer service person who can then ask the customer if they would be willing to add a day or two to the delivery lead time to significantly lower the freight cost. Simultaneously, the resources and constraints in the warehouse could be assessed to determine if the order could be shipped on time.

CLOSING THE IT CAPABILITY GAP

LM: *Over the past two years we've spoken with shippers who have decided to turn a portion of their IT needs over to 3PLs. How do you see this trending?*

Jim Morton: The technologies that are outsourced to 3PLs typically align with the logistics services that are being outsourced. Based on our research, spend for outsourcing as a percentage of total logistics expenditures has remained relatively stable over the past few years, so there is not a wholesale trend to outsource more IT needs to 3PLs.

In spite of these overall trends, many shippers are expressing interest in a more strategic relationship with their 3PLs, which requires additional IT enabled services.

However, there is some evidence that shippers will increase outsourcing of specific IT capabilities, including hosting of EDI platforms and messaging services, to their 3PL partners. In general, there is also a significant focus on reducing the total cost of ownership for information technology. This is evident from the continued interest in IT outsourcing and in low-cost delivery models such as SaaS.

LM: *What are some of the key reasons why a shipper may give up some of this responsibility to a 3PL?*

Morton: IT systems require a significant capital investment plus on-going operating costs related to maintenance. The right decision for some companies is to leverage the 3PL's investment in applications and systems infrastructure. Interestingly, we're even seeing some evidence of 3PLs offering their IT platforms on a subscription basis, as a part of their service contract.

Part of the value a 3PL offers is helping its customers mitigate risk by converting fixed costs associated with company owned assets into a more flexible and manageable variable cost structure. The same principle holds whether the assets are a distribution center or supply chain technology.

Depending on the companies involved, the 3PL may have better supply chain applications and a more robust systems infrastructure than the shipper. The 3PL's systems may be better integrated than those of the shipper, resulting in improved efficiency, data integrity, and visibility.

LM: *According to your research, what IT capabilities are shippers most likely to outsource to a 3PL?*

Morton: Shippers most frequently outsource IT capabilities relating to transportation management, warehouse management, and to a lesser extent, global trade management. These are technologies associated with more commoditized service offerings. IT associated with more strategic or customer-facing activities such as customer order management, supply chain planning, and network optimization is outsourced less extensively. In spite of these overall trends, many shippers are expressing an interest in a more strategic relationship with their 3PLs, which requires additional IT enabled services.

LM: *How does a shipper determine what IT capabilities to outsource to a 3PL and what to retain?*

Morton: It's clear that the data provided by IT systems is the lifeblood of supply chain planning and execution processes. Given this importance, there are many factors a company should carefully consider when deciding which IT systems to outsource to a 3PL. These decisions should be an integral part of the 3PL selection process. Of course, the shipper needs to compare the functionality of 3PL systems versus the systems they already have or would plan to implement internally.

In addition, the shipper should

assess the following: Are supply chain processes best served with the application managed internally or by the 3PL? Which applications should be outsourced together to maintain a tighter level of integration? Are 3PL systems sufficiently configurable to address both current and future business needs? Lastly, the outsourcing decision must align with the enterprise IT strategy. It's important for a company's supply chain management team to work closely with IT leadership to make the right decision.

LM: *What are some of the issues that shippers tend to have when relying on a 3PL for IT?*

Morton: To be fair, the 3PL industry has matured significantly with regards to information technology. With that said there are still some issues that shippers continue to experience with 3PL IT capabilities. Many 3PL providers have a complex IT environment, operating a variety of legacy applications, which may run on mainframes or mid-range systems.

In part, this is the result of acquisitions, but it creates a tangled web of system interconnections that are hard to maintain, inflexible, and do not promote an accurate real-time view of supply chain data.

As a consequence, shippers report a lack of integration among internal 3PL applications as a top issue. This issue leads to other problems that shippers sometimes experience with 3PL IT, including insufficient shipment, order, and inventory visibility—data that's not available in a timely fashion. Aside from the issues related to outsourcing IT, the same technology hurdles can make it difficult for 3PLs to correctly invoice and to create adequate performance reports for core logistics services.

LM: *In your recent outsourcing report you mention that there remains a gap between shipper expectations versus satisfaction with 3PL IT capabilities. How can the two parties work to close this gap?*

Morton: The main culprit is often the 3PL's IT environment, with multiple legacy applications running on dated systems or integrated with a patchwork of point-to-point connections. 3PLs spend significant amounts on IT, but much of that spend is directed towards maintenance instead of transforming the applications and technologies used for supply chain planning and execution.

However, shippers also bear some responsibility for this gap. 3PLs are often challenged by a shipper's inability to provide real-time interfaces to order management systems, timely demand forecasts, or real-time inventory status. Potentially, the best, long-term means to bridge this gap is adoption of a flexible, standardized, cross-industry platform. This approach would leverage existing 3PL IT applications within a service-oriented architecture (SOA) so that functions are made available through a set of software services. ☐

—Michael Levans is Group Editorial Director for the Supply Chain Group

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Air cargo forecast: Will a Phoenix Rise Above the Ash?

BY **PATRICK BURNSON,** EXECUTIVE EDITOR

Just when shippers thought the worst was over, flight and service disruptions of volcanic proportions took place this spring. And when European air space finally re-opened, capacity was scarce and even more expensive on almost all global trade routes.

Air cargo rates were already on the upswing, particularly for export shipments out of Asia, when ash from the still-erupting Iceland volcano Eyjafjallajokull drifted southward, creating a no fly zone across northern Europe.

The first to feel the impact were just-in-time manufacturers who had been replenishing inventories run down during the recession since the beginning of the year. Amid an escalating backlog of freight spreading across the continent's three key cargo hubs—Frankfurt, Paris Charles de Gaulle, and Amsterdam Schiphol—shippers were questioning if this Act of God was a sign to wait before rushing to conclusions about a recovery.

Now that the waiting is over, new questions remain. In late April the International Air Transport Association (IATA) stated from Geneva that the global airfreight upturn has largely been driven by the business inventory cycle. At the same time, however, IATA told shippers that they should expect this part of the cycle to wear out in the second half of this year when inventories reach normal levels.

From that point, said IATA, shippers can count on slower growth as airfreight will be driven by consumer spending and world trade growth.

"While the numbers are improving, the year has started with two disappointments," says Giovanni Bisignani, IATA's director general and CEO. "The first is in Europe. We anticipate Europe to post U.S. $2.2 billion in losses this year—the highest among the regions. The volcano episode only makes matters worse. Weak European and freight demand is in line with our forecast. It is also disappointing to see labor at European airlines engaging in strikes when the fragile industry needs to focus on improving efficiency and reducing costs."

The second, according to Bisignani, is the failure to address ownership issues in second-stage talks on open skies between the EU and the U.S. "Last April's agreement was not a step backwards," he says. "The gains from the stage-one talks have not been lost. But the two sides missed an opportunity at this critical time to give airlines the much needed normal commercial freedom to access global capital markets without the limitations of outdated foreign ownership restrictions embedded in the current bilateral system."

Finally, banking failures in Greece, Ireland, Portugal and Spain may also deliver a blow to a robust air cargo comeback here, say trade analysts. Future months will test the resilience of EU solidarity and faith in a shared commercial destiny.

ASIAN-PACIFIC PERSPECTIVE

On the other side of the world, however, airline association executives are seeing a different picture. According to Andrew Herdman, director general of the Association of Asia Pacific Airlines in Singapore, the global economic recovery has been led by the dynamic Asian economies, while the pickup in trade has been more broadly based.

GUY BILLOUT

"Both imports and exports are showing strong gains," Herdman says. "This suggests strongly that the underlying health of both the developed and developing economies is improving, even though unemployment levels remain high in many developed economies."

He agrees with Bisignani, though, that inventory restocking will account for some of the recent increases in shipment volumes, the underlying trends in demand are also generally positive. This echoes the findings of the International Monetary Fund, which is forecasting global economic growth of 3 percent to 4 percent in 2010.

"Evidence has been accumulating that the global economy is recovering from the 2008-2009 downturn," says Herdman. "Most notably, there has been a sharp rebound in international trade, which accelerated in the fourth quarter of 2009 and has been maintained in the first quarter of 2010. Air cargo shipments as well as marine container shipping traffic trends indicate a V-shaped recovery."

At the same time, current volumes are already getting back towards the record levels achieved before the onset of the global recession.

Brandan Fried, president of the Air Forwarders Association in Washington, D.C., says that the Asia-Pacific will continue to dominate the global airfreight market as it accounts for more than 60 percent of the increase in the international arena over the past few months. This will not only result in increased passenger-belly demand, but will also put pressure on freighter capacity going forward, he adds.

"I look at two major indicators in determining the state of the air cargo industry," says Fried. "First, a review of consumer spending provides a snapshot of future air freight demand. For example, recent statistics indicate that consumer spending is actually increasing despite rising interest rates and high unemployment. This consumer demand resulted in a 45 percent jump in Japan's exports last month along with substantial export increases in most of Asia."

As a result, says Fried, space on ocean vessels destined to the U.S. and Europe is now selling at a premium and airfreight is surging as well. While optimistic about the recovery, Fried says many of his constituents continue to question its sustainability and hope this increased activity is an actual growth indicator versus a simple restocking of shelves.

MODAL SHIFT?

Which raises another question: With ocean carriers raising rates this year, will shippers consider moving more

freight by air once the volcanic dust has settled? Not necessarily, says Herdman.

"The choice of shipping mode reflects various fundamental factors," he notes, "including the intrinsic value of the cargo, inventory carrying costs as a function of real interest rates, relative levels of cargo security, and the predictability of consumer demand."

Herdman observes that certain types of goods, particularly high value, time-sensitive, or perishable items, are regularly shipped by airfreight. Ocean shipping may carry as much as 100 times more tonnage than air cargo, but goods shipped by air account for 35 percent by value of international trade.

"Head to head competition between the two modes is rather limited," he says. "Some airfreight shipments are the result of unexpectedly high demand for certain types of goods. Therefore, in an economic downturn, air freight is the first to be cut, suffering quicker and sharper falls."

Conversely, Herdman says, in an unanticipated economic upturn, air cargo demand can show a sharp rebound as businesses respond to reduced inventories and unexpected sales demand. "Economic forecasting is an inexact science," he adds. "The logistics providers are the shock absorbers in the system, and demonstrate their value in being able to respond quickly to changing market conditions."

Fried, too, acknowledges that airfreight cost is considerably higher than its ocean counterpart, but its speed and efficiency delivers distinct value in getting products to market quickly and feeding just-in time production lines.

"Rate differences are but a small component in what goes into the airfreight decision as its value can return far greater results than its cost," he says. "As ocean rates increase, the cost disparity between modes lessens, and in many cases makes air freight a more viable economic alternative. This will result in more goods moving by air despite their initial intention to move by ocean."

And there's a measure of consensus among air cargo executives that there will be sufficient capacity to meet anticipated demand in most parts of the world. During the downturn, says Herdman, airlines temporarily reduced capacity by parking surplus aircraft and reducing utilization of the fleet. Given the relatively sharp falls in air cargo demand, the number of parked freighters increased markedly during the period.

"However, since the fourth quarter of 2009 we have seen airlines restoring capacity in response to the upturn in demand," he says. "Most Asian airlines had also taken care to preserve the workforce, even though hard decisions had to be made to reduce staff costs through reductions in pay, the loss of performance bonuses, and the introduction of unpaid leave schemes."

Having learned from previous industry downturns, Herdman adds, the industry has performed well in quickly responding to the recent upturn. Furthermore, airlines have maintained their order books for new aircraft—albeit with some slowing of deliveries—in order to ensure that the industry is well positioned to take advantage of further growth opportunities in the years ahead.

"Prospects for future growth remain extremely positive, particularly here in the Asia Pacific region," Herdman adds.

Friedman of the Air Forwarders Association agrees that for U.S. shippers, finding cargo space will not be an issue in 2010. Many carriers have parked aircraft in the desert during the economic downturn waiting for conditions to improve.

"Most airlines have learned to make aircraft deployment decisions based on sustained upward trends and not temporary surges," says Friedman. "We may see capacity constraints during the initial phases as carriers assess the viability of the recovery. In the long term however, airlines will be there to meet anticipated demand."

When will the EU fully harmonize?

In the wake of volcanic disruptions in April, the International Air Transport Association (IATA) sharply criticized European governments for their lack of leadership in handling airspace restrictions in light of the Icelandic volcano eruption and urged a re-think of the decision-making process.

"We are far enough into this crisis to express our dissatisfaction on how governments have managed it—with no risk assessment, no consultation, no coordination, and no leadership. This crisis is costing airlines at least $200 million a day in lost revenues and the European economy is suffering billions of dollars in lost business. In the face of such dire economic consequences, it is incredible that Europe's transport ministers had taken five days to organize a teleconference," said IATA chief Bisignani.

IATA criticized Europe's unique methodology of closing airspace based on theoretical modeling of the ash cloud. "This means that governments have not taken their responsibility to make clear decisions based on facts. Instead, it has been the air navigation service providers who announced that they would not provide service. And these decisions have been taken without adequately consulting the airlines," added Bisignani.

Now that the ash has cleared, Bisignani is calling for an urgent meeting of the International Civil Aviation Organization (ICAO), the specialized agency of the UN, to define government responsibility for the decisions to open or close airspace in a coordinated and effective way based on real data and special operating procedures.

—Patrick Burnson is Executive Editor of Logistics Management

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Global Supply Chains:

Research into the sourcing potential and practices in Africa, Eastern/Central Europe, and Asia/China reveal big differences—and big opportunities—for supply chain management professionals.

BY ARNOLD MALTZ, ADEGOKE OKE, POUL ERIK CHRISTIANSEN, AND FRED O. WALUMBWA

The need to compete effectively on cost is driving many firms in developed countries to source materials, products, components, and services from developing countries with low cost structures. Since developing countries view this as a driver of economic growth, they often compete vigorously to become suppliers to affluent economies.

In the past decade, the sourcing success stories have been in Eastern Europe and Asia, but major buyers are now seeking alternative sources to reduce their vulnerability to supply disruptions and cost increases. Indicative of this development, Chinese toy manufacturers have experienced strikes and quality problems while local protests forced Tata to relocate a factory in India. The likely evolution of regional capabilities is now part of the global strategy equation.

We recently interviewed lead buyers, suppliers, and intermediary firms operating globally to understand their expectations of sourcing geography over the medium and long term. Specifically, we collected data from buying firms based in the United States, Scandinavia, and United Kingdom; an intermediary company based in Scandinavia; and suppliers based in Estonia and Kenya.

All manufacturer and intermediary personnel had direct responsibility for choosing and working with partners in transitional, newly industrialized, and developing countries. These countries included Poland, Estonia, Romania, Mexico, China, and Kenya. Our research participants also offered their thoughts on other developing economies based on their past experiences in those economies.

We found that both buyers and suppliers perceived differences in both customer orientation and sourcing potential among firms in Africa, Eastern/Central Europe, and Asia/China.

THREE DIFFERENT SOURCING ROLES

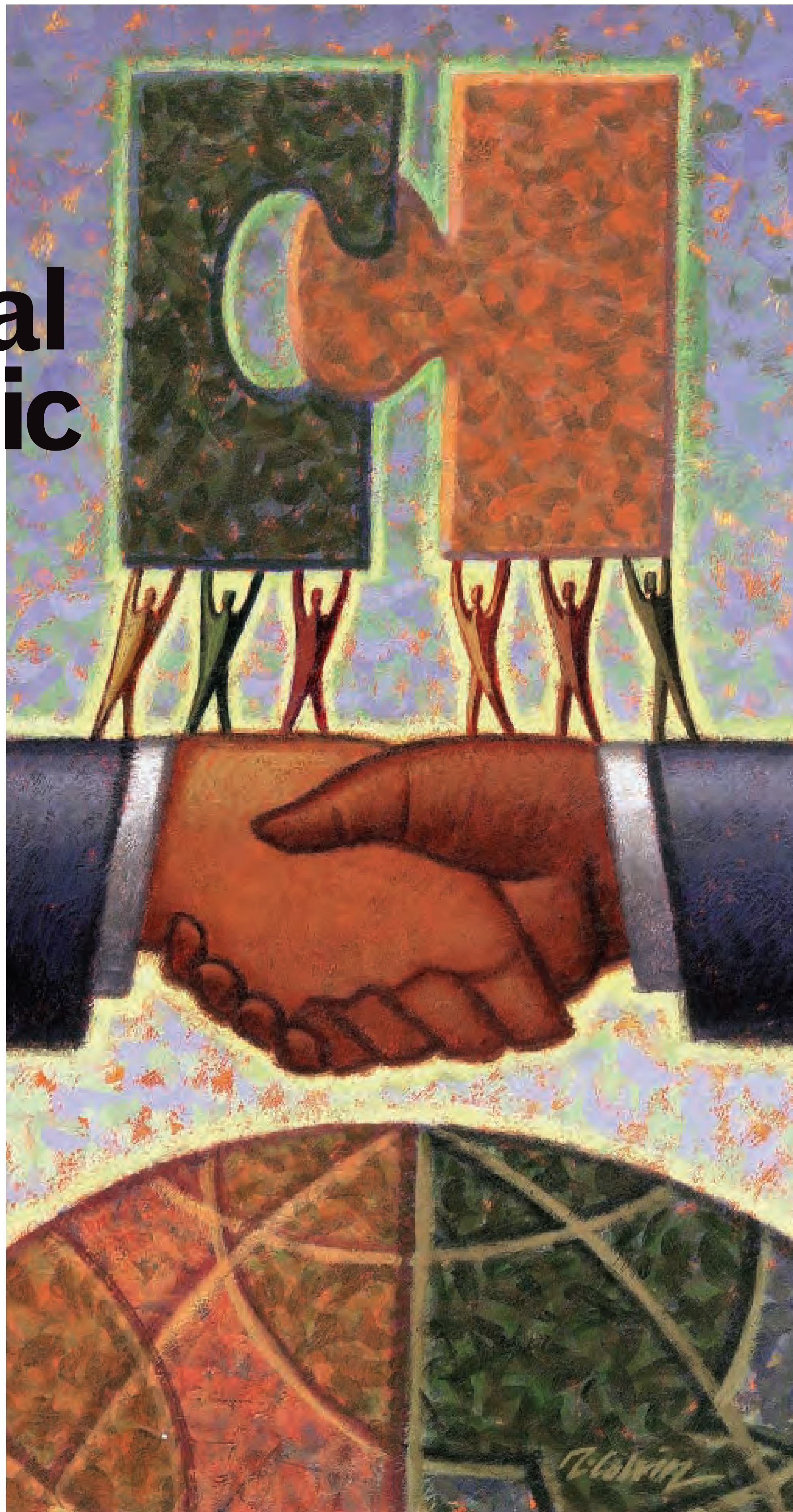
It appears that the three regional areas will play fundamentally different roles in the global economy and sourcing over the long term. Eastern and Central Europe will be integrated into Europe and may become the postponement platform for the rest of Europe, especially for manufacturers who want continuing control of their intellectual property.

Southeast Asia, China, and India will become economically more independent; buyers within the region will be a primary long-term factor in Asian development and will work to support both export-driven and regional supply networks. Sourcing from Africa will gradually increase, focused on the consumer goods industry and low-value and commodity product networks such as primary commodities (petroleum, minerals, etc). We are already seeing sourcing shift as China and India aspire to higher value manufacturing and wages increase in these key markets.

As for Eastern Europe, it appears that its initial success in leveraging low cost, skilled labor to attract European manufacturers is not sustainable. In fact, some Eastern European countries are already considered higher cost than alternative Asian locations.

Instead, Eastern Europe locations may be assigned the duty of quick response to short lead-time customer orders. Warehousing of subassemblies and configure-to-order capabilities may be left in Eastern Europe, but high volume sourcing and manufacturing will likely be transferred to Asia. Conversely, it is unlikely that African suppliers (except South Africa) can aspire to produce high value or highly engineered items in the near future.

The Regional Dynamic



The drivers of continuing reconfiguration and shifting patterns in sourcing across different regions include the following:

• **Unit costs are lower in Asia and will remain lower because of demographics.** The limited labor pool in Eastern European countries is relatively well-educated and will be looking for opportunities in knowledge-intensive activities, rather than production jobs. On the other hand, the large rural populations in China, India, and other Asian countries remain very interested in manufacturing jobs.

• **Asian countries represent a large potential market.** The Scandinavian and American brand-owning companies were expanding in Asia to supply their sister plants in the region as well as to support demand outside of Asia. Some of these manufacturers are setting up separate Chinese operations, one for domestic Chinese markets and the other for export items. As East Asian economies grow, demand for sophisticated products will also grow. India's markets are also reaching critical mass and will require local manufacturing capacity.

• **Final assembly of components for manufactured products, or at least final configuration, is likely to remain in Eastern Europe for European markets.** Some manufacturers continue to make their most advanced products in the original European factories to preserve expertise and intellectual property. These companies will need a just-in-time source of outsourced subassemblies, and Eastern Europe is a logical location for these

staging operations.

Also, the European market is complex. Power sources, languages, and label requirements still vary from country to country. The most efficient way to cope with this complexity is to reserve some percentage of total inventory for final customization for European customers.

- **Low-value product supply chains provide the entry points for companies in Africa (except South Africa).** With an under-developed infrastructure, a perceived lack of skilled labor, and political instability in some countries, African locations have to prove themselves in low risk areas such as consumer goods.

However, the low labor cost and abundant natural resources of Africa are already attracting interest from both advanced economy firms and others (notably Chinese and Indian companies) who are used to operating in less stable environments. For example, Mauritius has become a key location for making garments in the apparel industry that are sold worldwide.

INTRAREGIONAL DIFFERENCES ABOUND

Business environments and markets also vary within regions and countries. Thus, there is growing movement to open new operations in western China vs. the coastal cities, especially where labor cost is a major concern. In Eastern Europe the movement is from north to south (e.g., Poland to Romania) and may eventually be from west to east (Poland to the Ukraine, Russia, and Turkey).

In Africa, sourcing geography will depend on such factors as political stability and economic development. For example, Kenya is presently seen as a preferred sourcing location for agricultural products. However, there may be migration to Zimbabwe, Nigeria, and Ivory Coast as the situations in those countries improve.

The significant variations from country to country and within countries can be the result of labor differences, material costs and availability, market potential, cultural and religious differences, and levels of corruption. All of these factors were mentioned as criteria for choosing among sourcing locations in developing countries.

As various potential sourcing locations develop, supply chain professionals will need to continuously evaluate when and how to reconfigure supply networks. Global purchasing managers will be expected to act as they gain more intelligence on currently little-known areas such as Africa.

Locating and training suppliers in these regions will become part of the supply chain charter. Further, it will be up to supply chain professionals to use research such as ours and others to make optimal use of the resources, human and otherwise, that will become available as the economies of the world continue their progress toward interdependence and development. □

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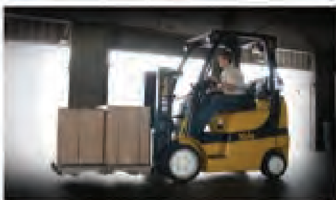

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EXECUTIVE CASE STUDY

Driving a Turnaround in TUMULTUOUS Times

BY **THOMAS J. KEDROWSKI**

Three years ago, PolyOne Corp., was weighed down by excess inventory, poor on-time performance and over-reliance on equity earnings from commodity joint ventures. In addition, the recent economic downturn hit hard in some of the company's key markets, including automotive and building and construction. Certain analysts and investors believed that PolyOne—a premier global provider of specialized polymer materials, services and solutions (such as metallic-look vinyl used in home appliances, the soft-touch plastic on the handle of your razor, and medical-grade polymers for tubing)—might have to file for bankruptcy.

Instead, the company generated $218 million of free cash flow in 2009 and reduced net debt by $223 million. Its share price has risen about 580 percent to $8.97 from its low of $1.32 in March 2009. Some analysts are now recommending PolyOne stock as a buy.

How did the company increase cash flow in such a short time and during one of the worst economic recessions in history? Largely through improvements in supply chain management. This article will focus on some of the most compelling actions that led to those improvements.

BACKGROUND

When I joined PolyOne as head of supply chain and operations in 2007, many challenges were clear, but progress was underway. The company was formed in 2000 through the consolidation of M.A. Hanna Company and a BF Goodrich spinoff, The Geon Company. The corporation that exists today is the product of acquisitions of several companies, each with its own way of operating. By the end of 2007, PolyOne had acquired five companies over the previous eight years.

However, as new businesses were folded into one entity, the company typically did not centralize or standardize key processes along the way. The lack of cohesion and consistency was evident on many levels—from one business unit operating under different names in different regions, to three different regions each hiring separate consulting firms to provide guidance on the same issue.

CEO Stephen D. Newlin, who joined PolyOne in February 2006, already had introduced efforts to resolve such inconsistencies and enhance service to customers. And

For PolyOne Corp., the secret to survival and success has been the supply chain. Targeted logistics initiatives improved on-time delivery and performance and got this business back on the path to profitability.

some of these, such as improving on-time delivery, were beginning to show progress. But he was up against a company history in which previous management had launched multiple initiatives, hired numerous consultants to help carry them out, and produced very little profit-and-loss impact other than creating additional expenses. Highly touted initiatives often were incompletely implemented and always abandoned before having a chance to show positive results.

Despite such challenges, I also saw a company with potential to triple or quadruple its financial performance through improved management of the supply chain and enhancement of a number of key related business processes.

MANUFACTURING REALIGNMENT

With more than 40 production facilities around the world, PolyOne's manufacturing network was an obvious place to start the optimization process. By 2008, the company was seeing unprecedented increases in the costs of energy and raw materials, placing heavy pressure on cyclical business sectors.

We also commenced a transition from a volume and price focus to a value-added solutions provider and were shifting our focus to more specialized solutions designed to take advantage of market trends in healthcare, electronics, bio-materials and sustainable products. At the same time, the downturn in the housing and automotive industries had diminished demand for some products. This development, combined with productivity improvements generated through the application of lean techniques, left the company faced with excess production capacity that was designed to accommodate the unsustainably high peak demand levels from the mid-2000s.

Rigorous reviews by our business units showed we could operate more efficiently and better leverage our global footprint by realigning a significant portion of our manufacturing assets with enough built-in flexibility to address mid- and long-term demand requirements, while improving service levels to our customers. We decided to rationalize production facilities and reduce our global cost structure through the implementation of a global manufacturing realignment program.

The effort faced one daunting challenge from the start: Employees were both cautious and skeptical about change. Some employees were concerned the realignment might disrupt service to customers or derail our growth plans. Additionally, the company had recently improved on-time delivery and some feared the manufacturing realignment might reverse that progress.

This wasn't the first time PolyOne had set out to make its manufacturing more efficient; a similar effort years earlier failed to effectively consider customer supply chain and service requirements. So, when we began planning the realignment project, we committed considerable time and effort to overcoming the internal resistance created by past failures.

We specifically spent time highlighting how this new approach was different from previous efforts. The team used several change management techniques and process improvement techniques such as Failure Mode Effect Analysis (FMEA), Key Stakeholders Analysis, and Risk Mitigation plans to ensure that the project plan would be both robust and adopted by the organization on a global basis.

PolyOne launched the manufacturing realignment project in July 2008, with plans to close nine production facilities, including seven in North America, over a nine-month period. Detailed timelines, transition plans, and communication efforts helped minimize both disruptions to customers and impact to affected employees. We informed customers how their product orders would be affected and when those products would be moved from one location to another. As a result, there were no surprises and customers experienced an extremely low number of service interruptions.

Since July 2008, through the manufacturing realignment and a global restructuring announced in January 2009, we have closed 20 percent of our manufacturing facilities and trimmed our workforce by approximately 20 percent.

I saw a company with potential to triple or quadruple its financial performance through improved management of the supply chain and enhancement of key related business processes.

INVENTORY REDUCTION

Just as pressing as the need to improve the efficiency of manufacturing facilities was the need to improve inventory management practices. While operations at PolyOne were generally decentralized, one process that unfortunately was consistent throughout the company was its approach to inventory.

Business units spent the first six to eight months of the year building inventory levels—and consuming cash—while the strongest demand came during the second and third quarters, creating a significant dislocation between actual demand and inventory positions. This approach prevailed largely because PolyOne's incentive compensation plans focused on year-end, not year-round, operating efficiency.

Consequently, the company often produced more of an item than was needed, figuring it would be able to sell it later. By the end of the year, inventory levels typically were at their lowest, but much of what remained on shelves had become aged inventory that no longer met customer needs. So, it often languished in warehouses for years—driving up the cost of both warehousing and inventory write downs, while underserving customers' needs.

In August 2008 we formed a global inventory management team to reduce inventory levels across businesses and regions, while maintaining the on-time delivery performance we had achieved. The effort included a two-day *Kaizen* (continuous improvement) event that dedicated time for employees to identify opportunities to reduce inventory throughout the supply chain and focused on reducing cash-to-cash cycle times.

The team placed a heavy emphasis on the supply chains with the highest total cost of ownership and value stream mapped these areas to identify quick wins and project opportunities. As a result of the event, we identified several areas of key focus, including consignment inventory, potential use of distributors, inventory transfer practices with key suppliers, and reorder points within our ERP system. The event and the resulting projects helped to accelerate an inventory improvement effort and provided subsequent rapid improvements in inventory efficiencies and supply chain costs.

The management team also decided to modify its incentive compensation program for every business unit and functional area, placing an increased emphasis on working capital improvements, which also helped drive new ideas and encouraged global best practice sharing.

Progress was tracked with daily monitoring and reporting. By the end of 2008, inventory was down to historically low levels for the company. Internally we had numerous individuals who wondered whether maintaining those levels was sustainable; however, when we looked at stronger-performing companies, we realized we still had a long way to go. So, we stepped up our efforts.

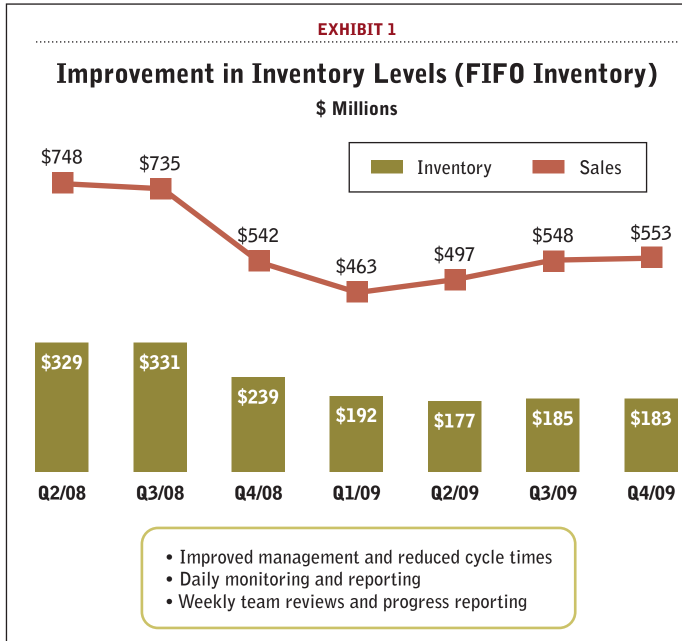
Before January 2009 many of our inventory management systems had reorder points that had been on autopilot driven by Manufacturing Requirements Planning within SAP. As the demand plummeted with the economic downturn of 2008 and 2009, we turned off portions of our ERP system and

moved to direct manual management of the material replenishment cycle. With this change, we more frequently reviewed the amount of material required to meet major fluctuations in customer demand patterns. As demand began to stabilize, we adjusted our planning horizons within the ERP system to provide for faster response times to demand variance.

The project teams also reviewed all business processes surrounding make-to-stock (MTS) vs. make-to-order (MTO) and made adjustments to account for the new manufacturing footprint, improved inventory cycle times, and customer service requirements.

From the second quarter of 2008 to the second quarter of 2009, inventory management actions reduced inventory levels by $152 million—freeing up much-needed cash while nearly doubling our inventory turns. (See Exhibit 1.)

The focus on inventory management is ongoing. During the company's global quarterly employee meetings, the CFO acknowledges the business units with the lowest inventory levels. The recognition has helped foster a spirit of competition aligned with achieving this important business goal. The inventory management team, now called the Global Sales and Operations Steering Committee, also increased the frequency of its meetings from monthly to weekly. The group's scope has widened to include demand forecasting, differentiated inventory strategies, and customer service level segmentation projects.



PROCESS IMPROVEMENTS

Our focus on lean processes has resulted in a number of changes to address underperforming businesses or practices. These have predominately involved inventory management processes. The Global Sales and Operations Steering Committee also is responsible for implementing a three-year strategic inventory plan that will move our current level of performance to world-class. The committee's role is not only figuring out how to track performance (in many cases, these are metrics we were not looking at before), but also determining how to sequence the action plans to improve PolyOne's performance in each area. Areas that we're tracking include inventory levels in absolute dollars, slow-moving inventory, days sales of inventory, and on-time delivery.

We've implemented various process improvements in these areas, including adding inventory stratification processes to drive better analysis of which products should be made-to-order vs. made-to-stock. New processes already are starting to move PolyOne closer to world-class performance. For instance, we improved our four-month average DSI from over 55 days in the first quarter of 2009 to nearly 37 by the third quarter of the same year.

The changes we've implemented so far demonstrate how properly managing the supply chain and operations can help a company manage through difficult times.

GREATER CUSTOMER FOCUS

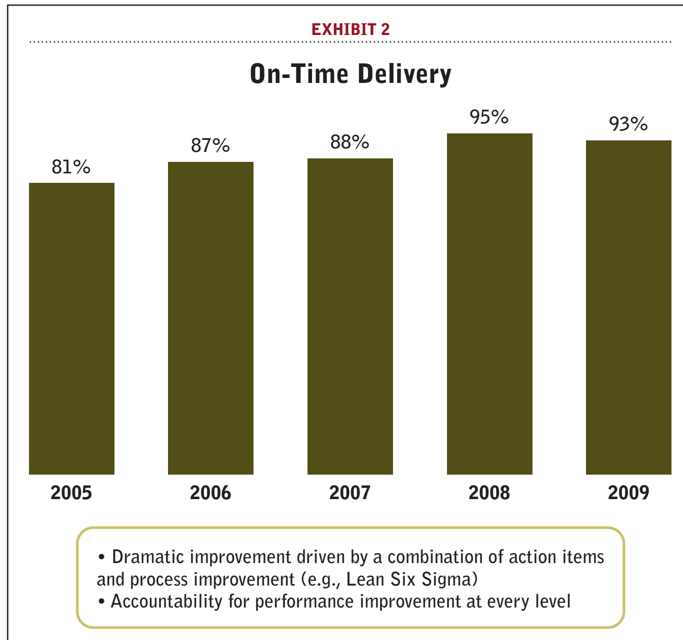
Every process and supply chain improvement effort is aligned to the voice of the customer. One of the most fundamental components of customer satisfaction for our business is the timely delivery of products to customers. Prior to 2007, on-time delivery was abysmal (even with warehouses full of inventory most of the year), and the results of a 2006 survey of our customers emphasized that on-time delivery was important to their businesses. Yet, prior to the first quarter of 2006, the company didn't even track it. When we began doing so, we found that we were delivering products on-time only 81 percent of the time. For our customers, that meant one out of every five orders was late.

At PolyOne, a product is considered on-time only if it is delivered in full by the date the customer asked for it to be delivered. To start fixing the problem, we first examined causes of delays (ranging from lack of capacity to lack of the right inventory) and addressed each specifically. Management also began to establish a clear mindset among employees that on-time delivery was critical. By the first quarter of 2007, on-time delivery performance had increased to 88 percent, and in 2009 it reached as high as 95 percent, which we consider best-in-class. Even as we reduced inventory and realigned our manufacturing, we remained focused on delivering products on-time to our 10,000 customers who operate in more than 130 countries around the world.

Despite reductions in the size of our workforce and number of facilities—and with the changing demands

of our customers, who were often making small, more frequent orders with less lead time—our global on-time delivery remained very strong in 2009. (Exhibit 2 shows the on-time delivery performance.)

The actions we've taken go beyond improving processes. PolyOne is also laser-focused on providing innovative solutions designed to create value and meet the emerging needs of our customers. And customers have noticed the shift. One customer recently sent us a letter complimenting our sales force and noting that PolyOne sellers have moved "from selling volume to selling value and solutions."



KEY CONTRIBUTORS TO CHANGE

From my first meeting with CEO Stephen Newlin in 2007, I knew his senior management team was ready for change. The team understood which areas needed to be improved, and they were willing to invest the necessary time and resources required to transform the company. Their commitment remained strong even as the business and the broader economy began to show signs of the recession. That commitment continues to be the most important contributor to our success.

A second contributor is the internal talent of PolyOne. While the new management team injected new talent onto teams, existing employees stepped up in a major way, embracing the new efforts as well as lessons learned from Lean Six Sigma (LSS) projects. The combined result has been the ability to enact significant change while building employee morale and enthusiasm for improved business performance.

Finally, a third factor that has helped drive cultural change, in particular, is communication. We knew early on that employees initially would hear talk of implementing Lean Six Sigma as simply the "initiative of the year." So, our communication has stressed that this is a new way of doing business—not just the talk of the moment. Newlin recognizes the results of LSS projects during quarterly global employee meetings; we've used internal newsletters and our intranet to share benchmark data that helps employees see how we compare with our industry; and we've shared the stories of our early successes.

LESSONS LEARNED

I came to PolyOne with a balanced background in both global business management and international supply chain management, developed over more than two decades at H.B. Fuller Company. Many of the issues that needed to be addressed at PolyOne were ones I had already faced in my career. However, even with this experience, our approach to solving problems over the past two and a half years has resulted in three key "lessons learned" for me:

1. Never underestimate the importance of communication and the visibility of success. PolyOne management realized early on that it needed to have consistent messaging around the importance of supply chain initiatives every step of the way. Having senior management sending those messages was critical to getting the focus needed to make change happen. Sharing success stories also boosted self-confidence among team members. As we started to generate stronger numbers, people were even more willing to take on projects and make suggestions that they would not have before.

2. Information sharing and leveraging best practices around the world is critical. We held global weekly meetings during which we had formally structured reviews of our progress in inventory management. We also tracked these metrics on shared files across a global network, providing real-time visibility to performance and project status. We would not have seen our progress to date if we had not done this.

3. Common rewards and incentive plans help drive cross-business sharing. Mindful that compensation structure helped create many of the problems with inventory, we determined that incentives and rewards would be needed to help drive solutions. Tying everyone's incentive compensation to global performance rather than solely to the performance of their own business units created an environment of cross-business and cross-functional sharing that accelerated our results.

PolyOne is in a much stronger supply chain position today than it was three years ago. Actions taken to realign manufacturing and reduce inventory helped cut working capital and free up cash flow for paying down debt as intended. And improvements in on-time delivery and other key processes strengthened relationships with customers.

While much of this was low-hanging fruit, the changes we've implemented so far demonstrate how properly managing the supply chain and operations can help a company manage through difficult times. Whether or not the economy improves soon, PolyOne is well positioned for growth and will be able to leverage its improved cost structure into improved profitability as demand increases.

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State of WMS: Upgrade Time

According to our *2010 Software User Survey*, nearly half of all logistics operations using a WMS are looking to upgrade over the next 12 months. Our technology correspondent explains why and then introduces us to a shipper that's on the brink of revolutionizing its warehouse operations.

BY **BRIDGET MCCREA,** CONTRIBUTING EDITOR

The grandfather of the supply chain software sector, the venerable warehouse management system (WMS), held on to the top spot in its class last year. *Logistics Management's 2010 Software User Survey* revealed that these useful systems continued to gain ground in 2009 and will penetrate the market even more this year despite the continuing economic woes being reported by many of its traditional users.

Our survey told us that WMS is being utilized by 53 percent of responding supply chain and logistics managers, while 27 percent report that they plan to upgrade or buy new systems this year. Of those shippers in the shopping mode, 38 percent are currently evaluating vendors, 10 percent are actually in the process of selecting a vendor, and 19 percent are already in the midst of making the purchase.

With WMS standing out as one of the most mature sectors of the supply chain software market, it stands to reason that the top market driver this year is the fundamental need to upgrade an existing system. Other drivers, according to the *LM* survey, include the need for improved real-time control, inventory deployment, label printing, and labor management.

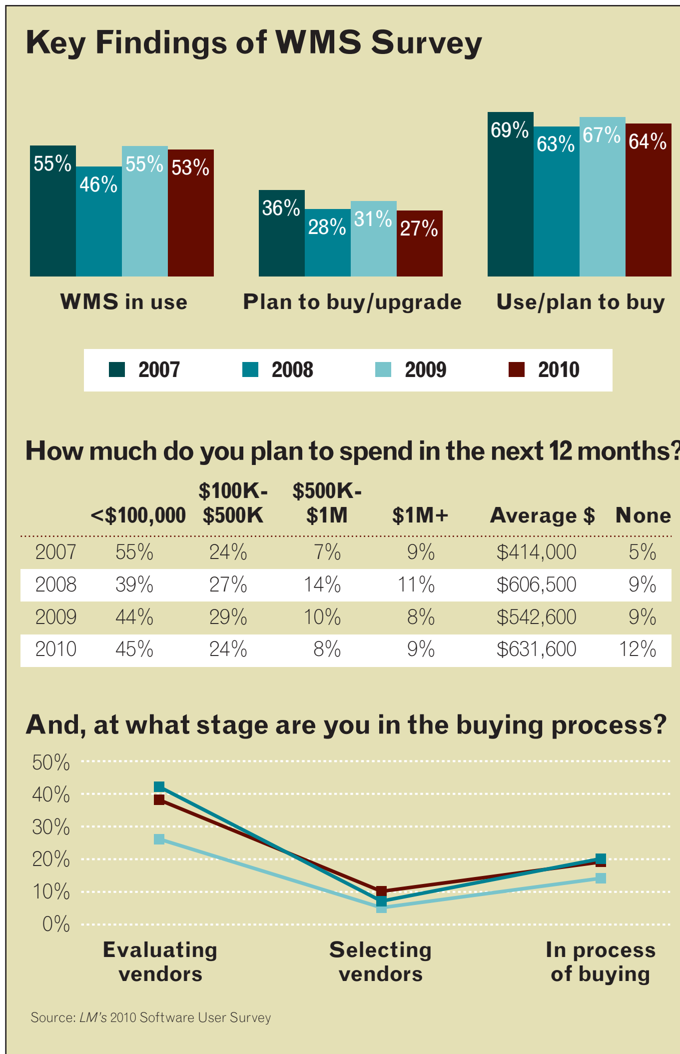
Greg Aimi, research director with AMR Research in Boston, validates these findings, saying that his firm's research pinpoints WMS as a stable market, despite the economic downturn. "WMS is in a changeover cycle right now, being that many solutions were put in place in the mid to late 1990s," says Aimi. "These applications typically have a 10-year to 15-year lifecycle, so we're at the point where many shippers are looking to upgrade and replace their antiquated solutions."

Aimi also points to an increased interest in network design—the attempt to figure out optimal inventory placement within the four walls of the warehouse—with driving some of the interest in WMS. Add offshore manufacturing and demand-driven inventory to the mix, says Aimi, and the

result is a very different supply chain than the one most shippers were using 15 years ago. "That's lead a lot of companies to buy a new WMS that can handle those changes," says Aimi.

The recession has also affected the WMS space, where Aimi is seeing frugal shippers outsourcing their warehouse and distribution activities to third-party logistics providers (3PLs) in an effort to save money and resources. Those 3PLs now need robust WMS capabilities to handle the increased workload; and, in turn, are helping to drive sales in the space.

"As companies have downsized and gotten rid of staff, they're looking more and more at outside parties that specialize in warehouse and distribution," says Aimi, who has seen numerous 3PLs migrate over from in-house, legacy-built applications to off-the-shelf software packages. "We're seeing the 3PLs partnering with the WMS vendors to add more software as they take on new clients," he adds.



How much do you plan to spend in the next 12 months?

	<$100,000	$100K-$500K	$500K-$1M	$1M+	Average $	None
2007	55%	24%	7%	9%	$414,000	5%
2008	39%	27%	14%	11%	$606,500	9%
2009	44%	29%	10%	8%	$542,600	9%
2010	45%	24%	8%	9%	$631,600	12%

Source: *LM's* 2010 Software User Survey

MARKET DRIVERS

Robert Hood, senior manager at supply chain consulting firm Capgemini, says a lot has happened since those initial WMS installations were put into place, and the systems available on today's market are much more sophisticated than those original solutions. "They're very alluring for shippers in search of advanced capabilities that their previous solutions didn't provide," says Hood.

Like Aimi, Hood says the highest amount of new activity involves 3PLs that are striving to meet their own customers' specific WMS requirements. To answer the call, many 3PLs are using multiple WMS installations.

The variety is mainly due to the inheritance of client systems, or the purchase of specialized, best-of-breed solutions from vendors like Manhattan or Red Prairie. By choosing these systems over those offered by ERPs, for example, shippers gain expanded software functionality and expertise that larger providers can't always provide.

According to Hood, obsolescence is also playing a role in the WMS sector's growth. He says that happens when vendors consolidate or close up shop, or when older systems become too expensive to warrant updating. The trend is forcing some shippers to upgrade or purchase new systems, or risk losing both support and capabilities. "In some cases there's no opportunity to go back to the existing provider," says Hood, "so companies are forced to take a look at what's available now and replace what they've been using with something new."

Even with the positive momentum caused by these top WMS drivers, the sector can't escape the negative impact of the global downturn. Finalizing a WMS market report at press time, Steve Banker, director of supply chain solutions for analyst firm ARC Advisory Group, hinted that revenues for smaller WMS vendors were down by 20 percent so far in 2010 compared to 2009, with larger providers feeling a smaller pinch.

"There are upgrades going on, but there's still less activity than last year," says Banker, whose own research reveals that most vendors think the worst of the recession is behind them. "They tell me that the project pipeline is improving, and there are new deals out there."

Hood expects slow, steady improvement in the overall supply chain software market in 2010, with WMS benefitting from that rising tide. He expects some vendor consolidation to take place, but says most shippers will stick with one of two schools of thought: Go to ERP providers like Oracle or SAP for comprehensive solutions that include WMS, or take the best-of-breed route with companies like Manhattan or Red Prairie.

Expect the best-of-breeds to expand their footprints in the market and offer even more comprehensive supply chain solutions, says Hood, in an effort to go head-to-head with the ERP providers. "The ERPs are becoming one-stop-shops where companies can get it all," says Hood. "This wasn't always a problem for the best-of-breeds, but SAP and Oracle have enhanced their capabilities and offer more complexity and depth of functionality that shippers are looking for from their WMS."

However, the question remains: Are shippers really maximizing the full capabilities of their WMS once the systems are in place, or are they just scratching the surface?

"Like any piece of software, WMS

has a lot more functionality than what's actually being used," says Banker, who sees the rush to install and implement the systems as a primary driver of that trend. "Companies want the system in on time and on budget, so they simplify things and never come back to see what more their systems can be doing."

HALF PRICE BOOKS: KISSING MANUAL SYSTEMS GOOD-BYE

One company that's not rushing into anything is Dallas-based Half Price Books. The company has taken plenty of time to select the right vendor and even push its rollout date back three months to ensure a smoother implementation.

This family-run firm posted growth—sales were up 7 percent in 2009 over 2008—during one of the nation's worst recessions. And and when it rolls out its new WMS from Manhattan Associates in May, the company says it plans to take full advantage of all of the system's capabilities.

In fact, the discount book retailer—which previously relied on a manual warehousing system—has certainly taken its time with the process, which started with a Request for Proposal sent out to multiple WMS vendors in 2009. "We used a lot of different filters to get it down to three vendor options," recalls Eric James, the bookseller's distribution manager.

James says the company's top criteria included a system that would work on a .NET platform, a vendor that was familiar with retailing, and a robust customer support network. It also had to be scalable and able to manage the warehousing activities for a company that's nearly doubled in size from to 109 stores, up from 60 in 1990.

Half Price Books has stores in 16 states, with each location carrying a variety of new and used books, music, movies, and games. The company continues to grow, having recently opened new stores in the Chicago area, Omaha, Neb., and Oklahoma City. The firm buys and sells "anything printed or recorded except yesterday's newspaper," according to James. "Preserving and recycling resources and entertainment of every form is our business."

The firm's new WMS will manage its traditional, fulfillment-type warehouse from a wholesale perspective, says James, while also managing the company's retail distribution. That distribution network includes unique inventory for each of its locations. James says that the WMS will also handle the "Big Kahuna" of the firm's supply chain operation, its assortment process. Using that process, Half Price Books purchases tractor-trailer loads of publishers' returns, sight and condition unseen.

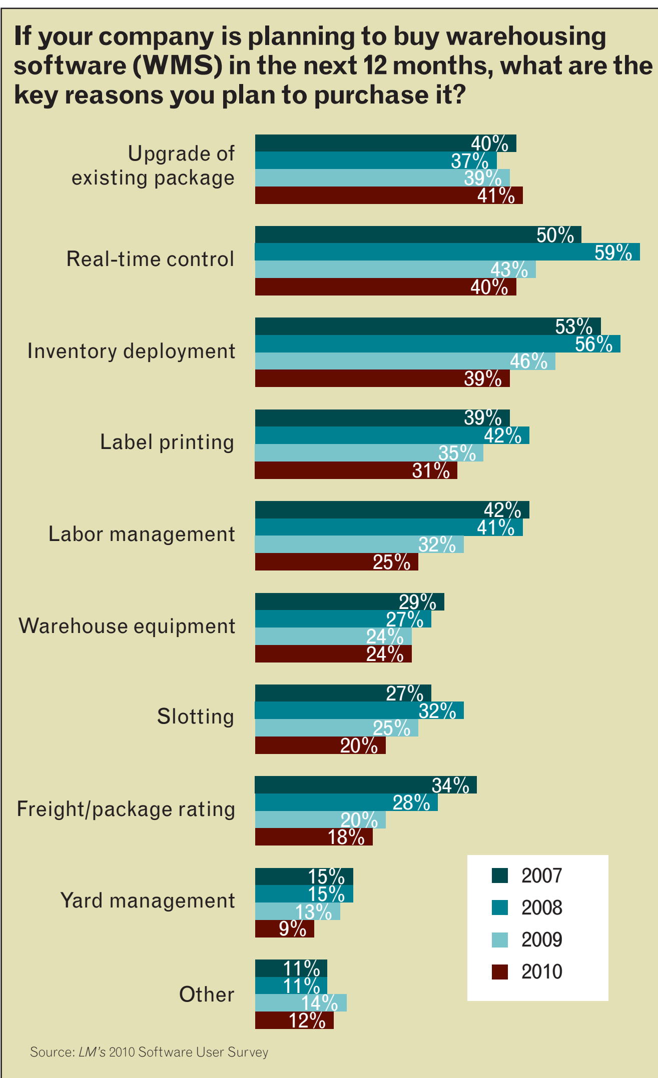
"We have very little invoice or manifest detail for these shipments," James explains, "but as we process them we need to collect the individual item data and the depth of quantity for all of those items."

With the help of its WMS, Half Price Books will be able to gain visibility of those shipments, make intelligent distribution decisions, and track the inventory at the item level across the supply chain. "We have no idea what individual SKUs are in those shipments, but we have to be able to collect that data and automate it quickly," says James. "We've never been able to do that before."

Half Price Books will also be using its WMS to manage a complex processing system based on the individual inventory requirements of each store location, where inventory visibility is critical to purchasing decisions. Also crucial is the handling of publisher returns, damaged merchandise, and other unique items that can quickly choke up an inefficient warehousing system.

James sees the WMS as an ultimate facilitator for Half Price Books' inventory and fulfillment challenges, and calls it a "building block for other systems to tie into." He expects proper allocation of inventory, access to inventory data and reports, and improved shipment visibility to be the top benefits provided by the WMS.

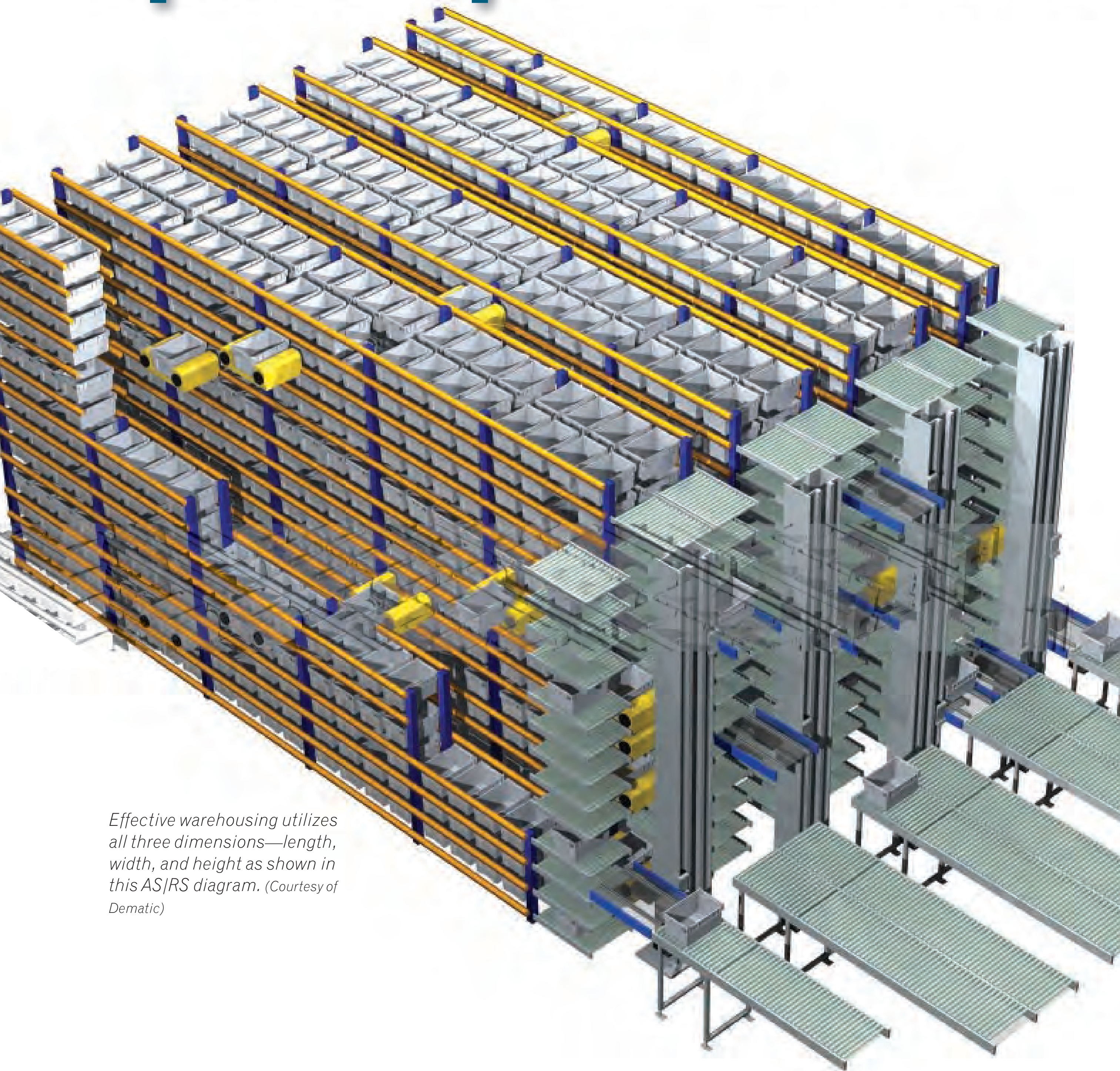
"We have a vast inventory, but sometimes we can't see it," says James. "Through this automated system we'll have the hard data we need to be able to make better purchase decisions, allocate inventory, and price items correctly. That will translate into streamlined processes across our entire supply chain." ☐



Source: *LM's* 2010 Software User Survey

—*Bridget McCrea is a Contributing Editor to* Logistics Management

Space Optimization:



Effective warehousing utilizes all three dimensions—length, width, and height as shown in this AS/RS diagram. (Courtesy of Dematic)

Mission Impossible?

We recently shared a few space optimization tricks for using all three dimensions of your warehouse/DC. Now we're going to focus our attention beyond the storage areas to the more critical operating areas. If you're still out of room, it's time to pay attention.

BY **MAIDA NAPOLITANO,** CONTRIBUTING EDITOR

When it comes to the economy, not much has changed. Many supply chain analysts are calling this the new normal, with warehouses and distribution centers (DCs) routinely operating under tight budgets while still expected to satisfy increasing customer demands. With limited capital dollars, the recurring theme has been to make do with what you have; and what you have is existing space that's only so wide and so high. So, how do you make the most of it?

Well, it could be worse. You could be experiencing a string of warehouse and DC closings and consolidations that would inevitably push space issues even more into the limelight. "Even in these remaining facilities, management may still not be willing to expand, putting the onus on DC managers to maximize existing space," reports Bill Elenbark, senior engineer for the supply chain consulting firm Transystems.

Could this be mission impossible? It actually helps if you look at your space from a 3D perspective. "You pay for three dimensions when you buy or lease a building: length, width, and height. The basic premise of the warehouse/DC business is that you need to use all three dimensions," says Lou Cerny, vice president for Sedlak Management Consultants, a logistics consulting company.

We shared a few space optimization tricks for using all three dimensions in last year's feature titled "5 ways to find hidden warehouse space." This month, we continue in that vein, but we're now going to focus our attention beyond the storage areas to the more critical operating areas: order picking, docks, returns, and value-added services (VAS). These high-traffic areas are notorious for eating up too much footprint while not fully utilizing the height of a facility.

Along with Cerny and Elenbark, we've tapped Ed Romaine, a vice president at KardexRemstar, a leading manufacturer of space-saving equipment, and Ken Ruehrdanz, distribution and warehousing market manager for logistics and distribution solutions provider Dematic, to offer even more ways to maximize operating space.

So, if you're still out of room it's time to pay attention.

TOO MUCH AIR, TOO MUCH DUST

Many operations only utilize the first 10 feet of building height leaving "too much air" in the remaining empty space up to the ceiling. "With many buildings having clear heights of 30 feet to 35 feet, that's a lot of wasted space that has operating costs associated with it—cost to heat, cost to cool, and cost to illuminate," points out Dematic's Ruehrdanz.

In addition, look for empty space within pick modules such as case flow racks and shelving as more evidence of underutilized space. It's not uncommon to see a three-inch carton located in the same shelf opening as a 12-inch carton. "I've given many seminars on saving space over the years," says KardexRemstar's Romaine, "and I always start out by asking who in the audience has taken a shelf and readjusted it after it was built. I've had only one person in 10 years ever raise their hand."

The presence of too much dust in an otherwise clean facility can also be a telltale sign. Romaine recalls walking through a large DC in New Jersey with rows upon rows of high-value, pick-to-light case flow rack and performing

the infamous "white-glove test" on products in prime pick facings. He found many with up to a quarter of an inch of dust.

"Pick-to-light flow rack is meant for highly-active picks," says Romaine. "Management at this facility had been complaining of not having enough space, but these products hadn't moved in awhile—maybe even years. They've been taking up space and pickers have had to pass by them to find the one item that they really needed, compromising productivity."

CURING SPATIAL DILEMMAS

After identifying the symptoms, it's time to address the possible cures. They range from simple slotting strategies with little or no capital required to the installation of mezzanines and more automated, high-tech pick and storage modules that usher in significant productivity gain, allowing management to realize an attractive return on investment (ROI).

Cure #1: Adopt smart, up-to-date slotting strategies. Although slotting is done primarily to improve order picking efficiency, it's also known to save space. "Instead of slotting items in 10 shelving sections," says Cerny, "slot them in denser case flow rack, allowing you to walk much less and still have the inventory back-up behind it."

Smart slotting involves not just taking into account a product's movement, but also its cube so that a product's cubic velocity can be matched and maximized to the space provided by the appropriate pick module. Once in place, remember to continually monitor your slotting strategy. Products may have changed packaging, creating smaller, more efficient shippable cases.

And don't forget to get creative. For seasonal businesses, instead of creating a dedicated pick lane in case flow rack for each SKU, Elenbark suggests rotating them in seasonally—as was the case of a sporting goods' retailer's DC.

"During baseball season, they were not selling any football goods, yet they had all the empty spots for them in the same space; so we recommended switching baseball and football in and out for a more compact footprint." Not only did the move save space, but it increased pick productivity as workers do not have to travel by all the empty slots.

Cure #2: Where appropriate, use mezzanines. If you have 40 percent of your floor space allocated to receiving and shipping docks, Cerny suggests using mezzanines. "It could be for active or reserved storage, offices, quality control, or VAS processing."

He warns, however, that you have to make sure you meet with local authorities especially when you've got a significant area of mezzanine proposed. "Generally, the rule is not to exceed 33 percent of the footprint of the building, otherwise you're looking at all sorts of additional fireproofing, quickly making it cost-prohibitive."

Cure #3: Pay closer attention to your slow and medium movers. Twenty percent of the fast-moving SKUs typically get the most attention—and the fanciest equipment—but you still have to deal with 80 percent of your slow and medium movers.

Romaine recommends using carousels and vertical lift modules (VLMs) for these slow and medium movers to save space. Carousels and VLMs not only save space but improve productivity because instead of a picker going to the product (person-to-goods), a mechanical device brings the product to the picker (goods-to-person).

Limited to eight feet in height, horizontal carousels can be stacked on top of each other with workers stationed on

Back view of a three-level horizontal carousel pick area. (Photos courtesy of KardexRemstar)

Going Vertical

Ceiling Height	Eliminated Shelving Sections	Space Savings (Sq. ft.)	Space Savings (percentage)
15'	31-35	317-328	76%
20'	45-49	461-472	82%
25'	59-65	569-616	85%
30'	73-80	713-724	88%
35'	87-94	821-868	89%
40'	to 100	to 99	91%

Source: KardexRemstar

Estimated space savings when replacing shelving with vertical carousels or vertical lift modules (VLMs)

narrow mezzanines at one end of each level to pick or replenish items. Vertical carousels and VLMs utilize the cube of a facility by storing over 60 feet high within a compact footprint.

In VLMs, product is stored in trays and a central extracting device grabs the required tray and delivers it to the pick window for picking. Both carousels and VLMs are typically arranged in "pods" of two or more units so that a worker can be picking from one unit while the next unit is busy indexing or extracting the next product, improving productivity.

Vertical lift modules (VLMs) utilizing cube of a facility and used for picking slow to medium movers.

Romaine tells the tale of how a luxury goods producer and distributor was able to consolidate their three facilities into one existing facility by using three VLMs. "This company not only saved up to 80 percent of otherwise wasted floor space, but also increased productivity by 40 percent." He adds that the system was originally calculated for 18 months ROI, "but it came in at 13 months, while contributing significantly to the closing of two warehouses."

Cure #4: Create space-saving layouts for special processing areas such VAS and returns. According to Elenbark, special processing areas have a tendency to creep in size and spread out over larger areas than are required. It may be high time to take a closer look and consider making space-saving changes. If a lot of pallets are sitting on the floor, consider adding a short section of pallet rack to take advantage of cube. Carousels can be used as buffers to accumulate processed returns before returning them to inventory.

Cure#5: Automate. Ruehrdanz says that if a user's business objectives can be linked to objectives such as improving product security, optimizing space, and addressing ergonomic issues, then the use of high density devices such as an automated storage and retrieval systems (AS/RS) may be justified. He adds that the business case can often be very compelling, especially when it eliminates the need to build a new facility. "Typical ROI for AS/RS," he adds," ranges from 2 years to 4 years."

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—Maida Napolitano is a Contributing Editor to Logistics Management

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U.S. Port Update: Top 25 Remain Bullish on Future

With the recession just about past, port industry authorities and analysts say that U.S. gateways will most certainly benefit in the short term. But how they'll manage in the long term is up to how well port leaders are executing current infrastructure and services improvement plans. Here's where they stand today.

BY **PATRICK BURNSON**, EXECUTIVE EDITOR

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While there has been a slight shift in the ranking of America's top ocean cargo gateways, industry authorities and trade analysts say that all major ports will benefit from the economic recovery that's now clearly underway.

Cynics might counter, of course, that the situation could not have gotten any worse. Readers will no doubt recall when we visited this subject last year. At that time, all Tier-One container load centers were reporting record declines in box throughput. Even the mighty West Coast port of LA/Long Beach was despairing over the dramatic slump in inbound carrier calls. That particular concern became more of a worry out west when shippers suggested that East Coast ports might become the preferred destination for cargo sourced from Asia in the future.

Many trade experts in Southern California agree that the industry and the broader economy are rebounding, but they say significant challenges still loom ahead.

"The recession is over, but the recovery remains weak," says Joseph Magaddino, Ph.D., chair of the Department of Economics at California State University, Long Beach. "Lingering unemployment, tight credit, and the depressed housing market make it unlikely that trade will reach its pre-recession highs anytime soon, but early signs are positive."

The Port of Long Beach, for example, experienced the fifth straight month of growth in April, prompting the port's executive director, Richard Steinke, to declare, "History shows our industry always rebounds." He adds that he's "cautiously optimistic about an upward trend."

This view is shared by Fred Malesa, vice president of international intermodal for BNSF Railway, which transports cargo containers to and from West Coast ports and the rest of the country. "I think we are headed in the right direction," Malesa says. "But as trade rebounds, it's important to prepare for the longer term as well."

West Coast prepares for increased competition

Indeed, the Port of Long Beach and the Port of Los Angeles—still the country's largest—are facing increasing competition from other West Coast ports for Asian cargo. And the planned expansion of the Panama Canal could permanently divert cargo to East Coast ports. Therefore, it's vital for these ports to invest in infrastructure and have consistent regulations if they want to remain leaders, experts say.

That appears to be just what the Port of

NORTH AMERICA CONTAINER PORTS
2008 PORT RANKING BY TWENTY-FOOT EQULIVALENT UNITS (TEUs)

2008 Rank	Port (State/Province)	Country	2008	2007	Absolute Change	2007 Change	2007 Rank
1	Los Angeles (CA)	United States	7,849,985	8,355,039	-505,054	-6.0%	1
2	Long Beach (CA)	United States	6,350,125	7,312,465	-962,340	-13.2%	2
3	New York/New Jersey	United States	5,265,058	5,299,105	-34,047	-0.6%	3
4	Savannah (GA)	United States	2,616,126	2,604,312	11,814	0.5%	4
5	Port Metro Vancouver	(BC) Canada	2,492,107	2,495,522	-3,415	-0.1%	5
6	Oakland (CA)	United States	2,236,244	2,388,182	-151,938	-6.4%	6
7	Hampton Roads (VA)	United States	2,083,278	2,128,366	-45,088	-2.1%	7
8	Tacoma (WA)	United States	1,861,352	1,924,934	-63,582	-3.3%	9
9	Houston (TX)	United States	1,794,309	1,768,627	25,682	1.5%	10
10	Seattle (WA)	United States	1,704,492	1,973,504	-269,012	-13.6%	8
11	San Juan (PR) (fy)	United States	1,684,883	1,695,134	-10,251	-0.6%	12
12	Charleston (SC)	United States	1,635,534	1,754,376	-118,843	-6.8%	11
13	Montreal (QU)	Canada	1,473,914	1,363,021	110,893	8.1%	14
14	Manzanillo (COL)	Mexico	1,409,782	1,409,614	168	0.0%	13
15	Honolulu (HI) (fy)	United States	1,124,388	1,125,382	-994	-0.1%	15
16	Port Everglades (FL) (fy)	United States	985,095	948,687	36,408	3.8%	16
17	Miami (FL) (fy)	United States	828,349	884,945	-56,596	-6.4%	17
18	Veracruz (VER)	Mexico	716,046	729,717	-13,671	-1.9%	18
19	Jacksonville (FL) (fy)	United States	697,494	710,073	-12,579	-1.8%	19
20	Baltimore (MD)	United States	612,877	610,466	2,411	0.4%	20
21	Anchorage (AK)	United States	544,315	504,844	39,471	7.8%	21
22	Lazaro Cardenas (MICH.)	Mexico	524,791	270,240	254,551	94.2%	25
23	Altamira (TAM)	Mexico	436,119	407,657	28,462	7.0%	23
24	Halifax (NS)	Canada	387,347	490,071	-102,724	-21.0%	22
25	Wilmington(DE)	United States	267,684	284,352	-16,668	-5.9%	24

Baltimore data for Maryland Port Administration (MPA) facilities only. Abbreviations: TEU= Twenty-foot Equivalent unit.
(fy) = Fiscal year. Reported figures represent total loaded and empty containers and include those moving in domestic and foreign trade. Sources: AAPA survey; Secretaria de Comunicaciones y Transporte, Coordinación General de Puertos y Marina Mercante (México); various websites.

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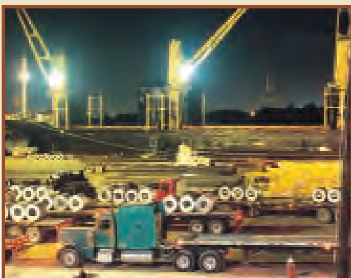

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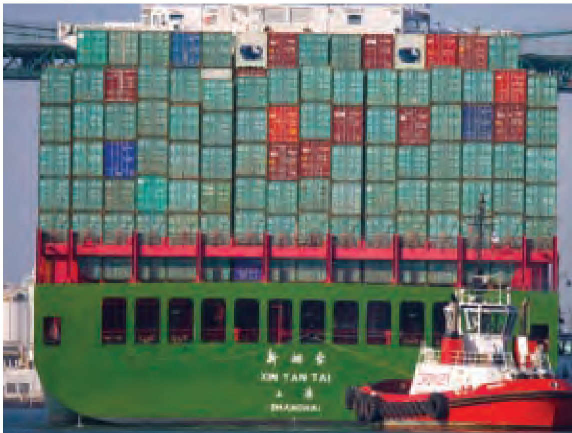
The Port of Long Beach experienced the fifth straight month of growth in April.

Oakland is now doing. With the arrival of three new container cranes from Shanghai last March, the port's leadership is anticipating increased cargo throughput. According to Omar Benjamin, the port's executive director, Oakland had a 30 percent increase in its maritime cargo imports and an 11 percent increase in outbound cargo exports compared to April 2009.

"There are glimmers of economic recovery on the horizon," he says, "and people are beginning to feel the negative news of the past several months beginning to thaw and give way to better days."

Benjamin also notes that Union Pacific Railroad opened its Donner Pass route located in the Sierra Nevada mountain range to domestic double-stack intermodal container freight traffic not long ago. This is designed to move cargo over a shorter, faster, and more efficient route from the Port of Oakland to the rest of the country.

Oakland has also joined the five other major West Coast ports, together with Union Pacific and BNSF to create the U.S. West Coast Collaboration. This group, while continuing to actively compete with each other for business, will collectively market the advantages of the Pacific Rim.

At the same time, however, public policy proposals on the West Coast threatening trade continue to flourish and enjoy popular support, says John McLaurin, president of the Pacific Merchant Shipping Association. He notes that elected officials talk about creating jobs, and then support measures that kill them.

"In 2010, politics will be dominated by elections," he says, noting that California voters will choose a new Governor as well as new mayors and city council members in Oakland and Long Beach. "Hundreds of state legislative seats in California and Washington are up for election. In addition, approximately 120 different ballot propositions have been filed with the California Attorney General's office for possible inclusion on the June and November ballots," says McLaurin.

On a hopeful note, however, McLaruin adds that influencing public policy is "a marathon, not a sprint." As cargo volumes slowly creep up, port officials must avoid a

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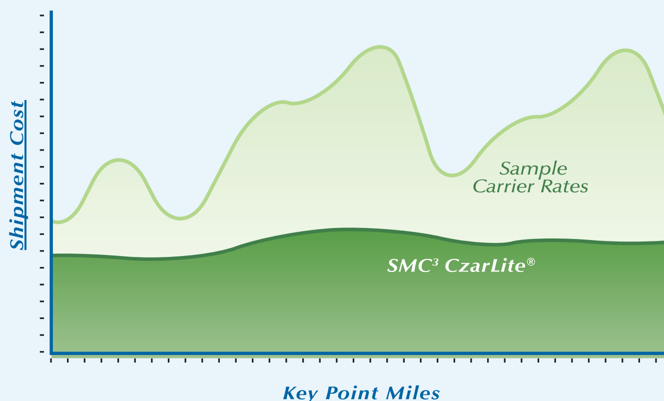

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reinstatement of the arrogance that cargo has nowhere else to go but through the West Coast gateways.

Gulf gathers capacity

If there's any doubt in this regard, just ask shippers doing business in the Gulf these days. As pockets of recovery are being revealed in niche trade lanes, increased demand led Miami-based Seaboard Marine to employ a larger ship in its weekly Port of New Orleans container service with Latin America.

"In those trade lanes that are particularly squeezed, one can expect lines with capacity to enter them in order to achieve market share," notes maritime analyst Michael Berzon. He adds that carriers that take this chance may also profit when demand becomes even greater.

A notable example of this occurred late last year when Seaboard's 974-TEU Seaboard Caribe replaced the 640-TEU Heinrich J. The vessel now makes weekly calls at the Port of New Orleans' Napoleon Avenue Container Terminal. Other port calls for the service includes St. Tomas, Guatemala, and Puerto Cortes, Honduras, with inland service to Managua, Nicaragua, and San Salvador.

In 2009, Seaboard moved more than 33,000 TEUs through the Gulf gateway.

"Seaboard Marine's expansion of service to New Orleans is great news for the entire maritime community," says Gary LaGrange, Port of New Orleans president and CEO. "During these difficult economic times, it demonstrates how strong businesses can continue to grow services and expand market share. We applaud Seaboard for their commitment to the Crescent City."

The larger vessel will allow Seaboard to offer a broader range of services, company officials say. "The New Orleans market continues to show strong potential to Central America," says Seaboard Marine President Edward Gonzales. "Employing the Seaboard Caribe, which has more than 50 percent greater capacity than the vessel it replaced, should allow us to broaden the amounts and types of cargoes carried."

Extending its business reach into Central America has long been a strategy for the Port of Houston as well. With the Panama Canal expansion moving along on schedule, the future looks promising.

"The benefits of a Canal expansion to the Port of Houston are many," says Thomas Kornegay, executive director of the Port of Houston Authority. "It would allow for Houston to compete with East Coast ports, handling the same larger and wider vessels. And, it would help continue the port's economic growth."

The Panama Canal Authority and the Port of Houston Authority entered into a strategic alliance several years ago to increase cooperation, such as joint marketing and coordination on modernization projects. Moreover, the two have worked together to boost trade along the increasingly important "All-Water Route," the global commerce link from Asia to America's Gulf Coast/East Coast via the Panama Canal.

East Coast continues to attract new calls

As U.S. shippers continue to step away from West Coast ports, the cargo gateways in the

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east are gaining share along with their peers in the Gulf.

The Port of Savannah, which receives 22 all-water Asian services transiting both the Panama and Suez Canals, acquired a new customer last March. The first China Ocean Shipping (Group) Company (COSCO) vessel to call on the port, M/V Zhen He, arrived at the GPA's Garden City Terminal in April. Prior to the Zhen He's arrival, COSCO moved cargo through Savannah on alliance carrier vessels. COSCO along with K-Line, Yang Ming and Hanjin comprise the CKYH Alliance.

"By adding Savannah as a port of call for our vessels, we have enhanced our customers' ability to reach the consumer markets faster and at a lower cost," says Howard Finkel, COSCO's vice president of trade. He adds that the growing number of distribution facilities in proximity to the port represents a new market opportunity to expand COSCO's business.

"Every port on the pacific rim is struggling," says Jon Monroe, president of Monroe Consulting. "And any cargo that moves away from the West Coast strengthens the position of ports in the east."

COSCO ranks fifth out of 50 carriers in terms of total liner capacity, according to the 2009 ASX-Alphaliner report. Previously, COSCO was the only "Top 20" carrier without vessels calling on Savannah. The carrier has moved cargo through the port with the "all water" East Coast service. The deployment rotation includes Savannah, New York, Boston, Qingdao, Shanghai, Ningbo and Yokahama.

"We appreciate COSCO's confidence in our ability to handle its container volume now and in the future," says Georgia Port Authority executive director Doug Marchand, who adds that Savannah offers a "logistically friendly" location with two on-terminal rail providers and immediate access to two interstate highways. "And this helps us attract additional cargo in a challenging economy," he says.

Within the same time frame, the neighboring South Carolina State Ports Authority (SCSPA) announced double-digit volume increases during March, along with the addition of a new service between Charleston, Northern China, and South Korea.

March was the third straight month of year-over-year container volume increases for the Port of Charleston. Pier containers were up 24.4 percent in March compared to the same month last year. March volume was also 11.3 percent higher than the February 2010 volume of pier containers at Charleston's three container terminals. Breakbulk volume was also up significantly, with total pier tons up 46.5 percent in March compared to the same month last year at terminals in Charleston and Georgetown.

"These volume gains are encouraging and significant," says Jim Newsome, president and CEO of the SCSPA. He attributed the growth to restocking of inventories, export market growth and the SCSPA's aggressive new business development efforts. "As ocean carriers look to enhance or start new services, Charleston is firmly on their radar screen," Newsome says.

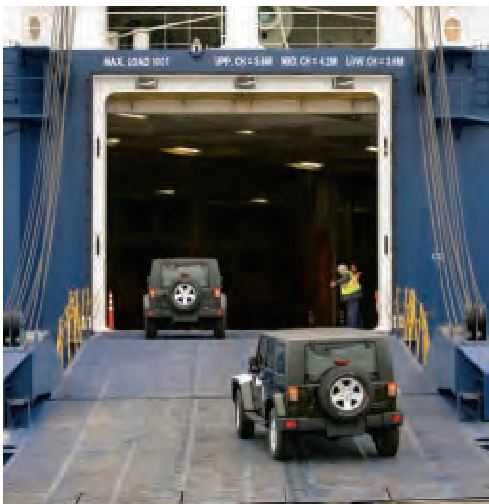
Demonstrating the SCSPA's focus on bringing new business and services to South Carolina's ports, Charleston will be the last U.S. port outbound on CSAV's new America Express Service, or AMEX. CSAV (Compañía Sud Americana de Vapores) of Chile is the largest ocean carrier in Latin America and, founded in 1872, is one of the oldest shipping companies in the world.

The new weekly service will bring 52 additional ship calls annually, linking Charleston directly to markets across Northern China and South Korea. Transshipment in the Caribbean will provide additional market access across Central and South America.

Paul McClintock, senior vice president and chief commercial officer of the SCSPA, champions Charleston's advantages.

"The strategic placement of Charleston as the last U.S. port outbound highlights this region's export potential to markets in Asia," McClintock says. "With the deepest channels in the region, as well as ample capacity and equipment, Charleston is a compelling place to do business." □

—Patrick Burnson is Executive Editor of Logistics Management



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State of Supply Chain Continuing Education: Measuring the Investment

Companies that are investing time and money in supply chain executive education are paying closer attention to the anticipated ROI from this investment.

Bridget McCrea, Contributing Editor

With the goal of squeezing benefits out of every penny spent, businesses are looking at supply chain executive education to provide both tangible and intangible returns on their investment, or ROI.

Take the client that Brent Smith, associate dean of executive education at Rice University in Houston, worked with recently. Determined to make changes to its global supply chain that would result in real-world savings, the corporation's investment in education was covered before the executives even finished the program.

"The employees' class project saved the company money before the course wrapped up," says Smith, who is also a professor of management and psychology. Going into Rice's executive education program, Smith said the firm had a two-pronged focus that included the educational activities themselves, and the bottom-line impact that the company could gain by putting the learned ideas into action.

What made this case interesting, says Smith, was the way the firm stated its ROI goals and identified specific areas of improvement before its executives took part in the course. "They were willing to state upfront their interest in seeing tangible outcomes," recalls Smith. "That helped us model the educational activities for the program while ensuring that those outcomes were achieved."

That ability to connect education and real-life work goes a long way in helping companies reach their target ROI from the courses. "It's not just education divorced from the company," Smith notes. "It's actual work."

In this particular scenario, Smith says the company got involved with one project that focused on global supply chain issues. As part of that project, a group of 30 employees and instructors converged and developed recommendations that the firm then put into action. "They wound up creating ef-

ficiencies within the firm's global supply chain," Smith explains. "Those efficiencies resulted in substantial savings—which far outstripped the cost of the executive education program itself—for the company."

Multiple benefits possible

The fact that this client stated its ROI expectations upfront, and then followed through by making the changes necessary to squeeze more profits from its supply chain, doesn't surprise the Rice educator. He sees a growing number of companies focused on bottom-line-oriented executive education. "It's a general trend for organizations to examine more broadly the impact of any type of training," Smith adds.

Getting there isn't always easy for companies. The problem is that while most know that they should be working to maximize their ROI, they don't always understand the concept as it relates to executive education. "ROI is one of those terms that everyone tosses around regarding everything," says Smith. "The common definition is: if we're going to put something into this, then we want to get something out of it. Rarely are companies thoughtful about how to conceptualize the ROI of executive education."

Credit the multiple "levels" of ROI for creating some of that confusion, says Smith. He points out that some of the benefits are easy to measure and define (such as the financial returns realized by the client that applied the learned concepts to its global supply chain), while others are not as simple to quantify (the fact that executives bring back with them to the workplace a higher level of knowledge on topics like collaboration, for example).

David Closs, chair of the Supply Chain Management Department at Michigan State University, has also noted a trend toward companies seeking a clear ROI from their investments in execu-

What's the ROI for shippers?

By Bridget McCrea

If *Logistics Management's 2010 Salary Survey* is any indication, executive education not only produces ROI for companies, but it also helps elevate salaries and status for individual logistics and supply chain managers. Conducted in December 2009, the survey revealed a direct link between education and salary. The average annual salary for a supply chain professional with a high school degree is $67,637, while the individual who completed some college makes $81,830.

Higher degrees command better salaries in the supply chain space, where college graduates earn $100,800 annually and those with MBAs make $137,486. Overall, the average salary for a supply chain professional is $103,003, and the median salary is $88,000. Despite the current economy, nearly half of the respondents saw an average salary increase of 4.8 percent over the prior year.

So where does education level fit into the overall logistics and supply chain career puzzle? Well, 94 percent of respondents attended college where 73 percent earned at least an undergraduate degree. Nineteen percent hold MBAs, 35 percent have completed formal education in logistics and supply chain management and—among the latter group—32 percent have an undergraduate degree in logistics and supply chain management.

Informal executive education in the supply chain space was also popular among respondents. Of those managers who attended formal supply chain management training, for example, 44 percent did so at industry conferences, seminars, and workshops, 43 percent via job-related training, and 35 percent earned professional certifications.

Robert Novack, associate professor of supply chain management at Penn State University isn't surprised by logistics managers' penchant for education and continued training. Novack says the ROI can take various forms. Some students walk away with a broader perspective of the logistics fields, veterans get a "refresher" education that they wouldn't otherwise be able to access from a single source, and others gain insights into what other firms are doing, through personal networking with other students, for example.

"As educators, we try to give managers different perspectives on what other firms are doing in the marketplace," says Novack. "They can then take that knowledge and put it to use at their own companies."

Novack says that measuring the direct impact of executive education on a logistics manager's salary can be difficult, even when the student returns to work with a certificate of completion. "These executive programs can serve as a catalyst for promotions," says Novack, "but it's really up to the individual to do something with the knowledge they've gained. The raise probably won't come automatically."

David Closs, chairperson for Michigan State University's Supply Chain Management Department, concurs, and adds that opportunities to advance at an existing firm—or, move into a higher position at another firm—are often enhanced by executive education. "For the short term, the goal shouldn't be to complete a program just to get a 2 percent raise," says Closs. "The focus should be on the fact that executive education is necessary to get promoted beyond a certain level."

Closs says some of the quickest executive education ROI comes when students have been "working in a narrow box for a long time," and in need of fresh, current information and knowledge about their industries. "Executive education can give you a big-picture perspective on what's current in areas like transportation, warehousing, and technology," says Closs. "It can help push you into job opportunities (such as director of distribution) where you otherwise may not have had much of a chance."

—Bridget McCrea is a Contributing Editor to *Logistics Management*

tive education. Over a two-semester period recently, Closs says the school worked with employees from several Western Michigan firms, all of which invested "a few thousand dollars" in executive education to yield anywhere from $100,000 to $400,000 in financial returns.

"In their minds, those returns sell the programs," says Closs, who adds that the ROI of executive education often goes beyond just dollars and cents saved. "Just yesterday a student told me that the course forced him to take a much broader view of his industry and business, rather than just focusing on the firm's production," says Closs. "Those types of mindset changes can positively impact customers, business partners and the company itself."

Like raising kids

Educator Robert Novack compares executive education to child-rearing: you put an awful lot of time and money into the process, but you can never be absolutely sure exactly how it's all going to turn out.

"You know that the benefits will be there at some point, but you don't know what they are yet," says Novack, associate professor of supply chain management at Penn State University, where enrollment in public, supply chain executive education programs is up 101 percent over the last two years. "It's the same with executive education, where the cost is easy to identify, but the direct dollar benefits are fuzzy."

Novack says that ROI can usually be pinpointed the quickest in a project-specific environment—where companies bring their supply chain problems and issues to the table. Through a process known as "action learning," the educator can tailor the coursework around those specific problems. "If that project is a success, then the company can measure how much money it is saving as a result of applying that knowledge in the real world," he says. "Otherwise, the ROI is pretty much a moving target."

Measuring returns in the online world isn't any easier, according to Closs, who says the nascent format has yet to prove itself as a cheaper and faster way to achieve solid results. "There's a push for online education because of the cost, and the fact that it doesn't require travel," says Closs, whose department just finished one online course and is currently considering another. "It went smoothly, but we still think it's hard to replicate classroom interaction and teamwork online."

Hybrid educational offerings that include some class work and some online studies could bridge that gap, says Closs, and help companies achieve their expected ROIs in a more efficient manner. Such options could find executives following a six-week online course with a two-day session on-site. "This setup would allow for some camaraderie and relationship-building," says Closs, "without so much travel and time commitment."

Made to measure

Joseph R. Carter, ISM professor of supply chain management at Arizona State University, understands that companies want to know what they're going to get out of their supply chain executive education.

Carter also realizes that many times it's difficult to put a number on those benefits, since many of them revolve around the implementation of change at the corporate level—something that's not always easy to attach an ROI to.

"It's hard to come up with a quantitative measure," says Carter, who advises firms to take a more holistic approach to the concept of ROI by factoring in the complete process (designing the class itself, creating an action plan for implementing the lessons learned, measuring

Strategies and Leadership in Supply Chains

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the hard and soft results, and so forth). Carter also notes that while classes on negotiating, for example, tend to yield tangible results in the workplace, those courses centered on logistics, innovation, and strategic sourcing are much more difficult to measure.

Those firms asking for proof of ROI from their supply chain education should be as specific as possible about their goals, adds Smith, particularly if a university or organization is being asked to tailor that education around the company's needs. "Bring it up at the initial, contract stage if you're doing a custom program," he advises. "Be clear about what you mean by ROI, and exactly what you want to get out of the program."

And realize that the ROI may not come overnight. In fact, Smith says short-term financial goals are often elusive, and tend to leave companies frustrated over their executive education choices and investments. "Unless you're thoughtful about structuring a program that can address specific organizational needs," says Smith, "you may be disappointed with the short-term financial impact of executive education."

Show us the money

Going beyond dollars and cents, Smith says companies can realistically expect to see ROI in the form of longer-term benefits that come from incremental improvements that "people make within the organization" as a result of knowledge gained from the educational program.

After all, isn't one of the key rewards of executive education an enhanced sense of loyalty among the participants to the employer who invested in their educations?

"Don't overlook the fact that executive education also results in increased commitments and engagements from people who realize that the organization has invested in them by enrolling them in corporate education," says Smith of Rice University.

Carter concurs, and notes that while solid ROI from executive education can be difficult to measure, it has been proven that employee loyalty rises and turnover decreases when companies invest in workforce education. "You want to be able to take the best and brightest and anchor them into your firm," says Carter. "What better way to do that than by sending your employees a message that shows your firm's willingness to train, educate and develop their career paths?"

Bridget McCrea is a Contributing Editor to Logistics Management

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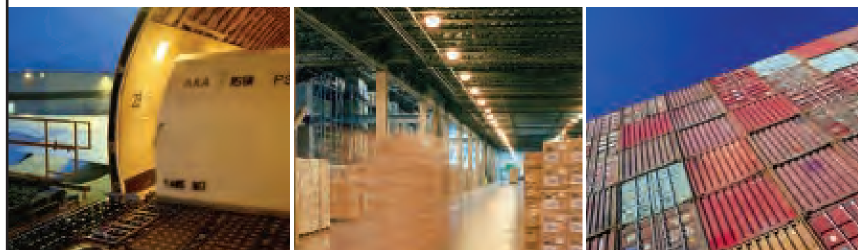

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Playing time is essential to developing talent

By John A. Gentle, DLP

IN EARLY APRIL THE New York Yankees sent their top major league prospect down to their Scranton Triple-A ball team to gain critical learning experiences. In the meantime, the Yankees began the task of repeating as World Series Champions much to the dismay of those day-dreaming Red Sox fans like my wife and the editorial director of this esteemed magazine.

Today, somewhere in the United States, a logistics manager has just been called into his boss' office. He's surprised to learn that the company is giving him a highly-touted young prospect to help him meet the goals that the company has set for his department this year.

Walking back to his desk, the supervisor wonders where he's going to have this person sit and what he's going to have this person do.

How will the learning experiences of these two top prospects compare? Will the manager's learning experience pale in comparison to the prospects? Perhaps a quick comparison of the plan for both will reveal the answer.

Since Baseball is only a sport, let's start there. A Triple-A player will be expected to develop his skill every day, working together with his teammates to win the game. He will play in the cold, rain, and extreme heat. Defensively, he will play on different size fields, some well maintained some not. He will have to learn how to compensate for the wind, sun, and the curvature of the flight of the ball as it spins coming off the bat of right-handed and left-handed hitters.

Offensively, he will face righties and southpaws. He will see curves, fastballs, change-ups, sliders, and splitters. He will compete directly against rookies, all-stars, and even potential Hall-of-Famers. He needs to understand how humidity and sea level affects the flight of the ball. Muscular development, dexterity, agility, hand and foot speed will need to be coupled with anticipation, judgment, and the skill assessment of the fielders. Patience will need to be coupled with passion to be controlled on and off the field. Above all, the prospect will need to develop and protect his body from career ending injuries.

Now, consider the highly-touted logistics prospect. He graduated from a good business school with a major in logistics and supply chain. His interpersonal skills appear to be good, but he will need to learn the business. More specifically he'll need to understand business goals, department processes, KRAs, measures, fundamental metrics, qualifying carriers, bidding and rate negotiation, carrier development, tendering freight, along with different plant loading processes and load patterns to minimize damage and maximize cube utilization—and don't forget those pesky FMCSA and CBP rules.

Organized with a different scenario every day, farm teams provide a well thought-out training plan, requiring and relying on all players to use and develop skills every day to win the game.

The logistics manager thinks long and hard about where he should start the prospect. Maybe he can put him in with the dispatch team and have him learn the basics of tendering and carrier selection. Or perhaps he can even sit with the rate negotiation team on the upcoming bid. The supervisor reasoned that as long as the new guy doesn't do anything to make us look bad or screw up a big customer's order, we'll be okay.

We're well aware that the Triple-A baseball team will provide a superior training experience. Organized with a different scenario every day, farm teams provide a well thought-out training plan, requiring and relying on all players to use and develop skills every day to win the game. At the end of the season the new player will understand the game, know the rules, get to know the competition, learn the strategy, execute the game plan, and use judgment to manage risk effectively.

If your logistics and transportation training program does not include a structured three- or four-week orientation with the business, plants, carriers, industry, regulations, pending legislation, and planned rotation assignments to different department teams with strong expectation for contribution, then you've just struck out and left your new hire stranded on the bench searching the Internet for meaningful work. □

John A. Gentle is president of John A. Gentle & Associates, LLC, a logistics consulting firm specializing in contract/relationship management and regulatory compliance for shippers, carriers, brokers, and distribution centers. A recipient of several industry awards, he has more than 35 years of experience in transportation and logistics management. He can be reached at jag@RelaTranShips.com.

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