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A Resource for the Year Ahead

It's December, and time once again for our annual Executive Guide to Supply Chain Resources. This is a comprehensive guide to services, products, and educational opportunities targeted specifically

to supply chain professionals. As with years past, we're also featuring Executive Editor Patrick Burnson's annual outlook on the global economy. His message: Expect the global economy to tread water as slow but steady growth in the U.S. is offset by headwinds in other regions. He also offers a take on how the events in Paris could—we stress could—have an effect on global growth.



Bob Trebilcock,
Editorial Director
 btrebilcock@peerlessmedia.com

We've added several features to the issue to complement our annual Outlook, including a look at how Washington Suburban Sanitary Commission (WSSC), one of the nation's largest and oldest public utilities, applied best-in-class procurement practices from the private sector to deliver big savings to its bottom line. We're also featuring an innovative transportation bidding process put in place in Asia by Knorr-Bremse, one of the world's largest manufacturers of brake systems for rail and commercial vehicles. As with WSSC, it is changing how the company does business.

The editors at *Supply Chain Management Review* wish all of our readers a successful year to come.

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At this time last year our experts told us to expect a “gravity shift” toward economic centers in the East. China’s sudden decline has changed all that, and it now appears that supply chains may remain in stasis worldwide.

Global Economy *Likely to* Remain Stalled *in* 2016

By Patrick Burnson

The outlook for the global economy in 2016 is a mixed bag, with positive news for the U.S. economy and choppy forecasts for other parts of the world. Economists at IHS Global Insight continue to forecast 3.0 percent global real GDP growth in 2016. That growth, however, will not be felt across the global board as downward revisions to the forecasts for Brazil, Canada, Japan, Russia, and the United Kingdom are offset by an upward revision to U.S. growth.

“We expect some of the demand-side constraints on growth (deleveraging and austerity, weak trade growth, and the slowdown in China) to ease in the coming year,” says IHS Chief Economist Nariman Behraves. “Yet, the longer-term deceleration in the global economy will not reverse without aggressive policy actions to alleviate supply constraints.”

As for the United States, Behraves says “the economy keeps chugging along,” while the Federal Reserve

holds fire. Second-quarter real GDP growth was revised up from 3.7 percent to 3.9 percent owing to more robust growth in domestic demand, including consumer spending, capital expenditures, and residential investment. The need to work down elevated levels of inventories will restrain near-term growth.

“We expect that the Federal Reserve will raise interest rates at its December meeting—unless the job market loses more steam and/or there is a federal government shutdown,” says Behraves.

Europe, meanwhile, is still on track for a modest acceleration in economic activity—with a potential upside from the refugee crisis. The Eurozone economy is supported by monetary stimulus, a competitive euro, falling commodity prices, and pent-up demand. The recent refugee crisis could turn out to be a positive supply shock, with an influx of more than 1.2 million people in 2015—albeit with certain risks (see sidebar). As a share of total population, Hungary, Austria, Sweden, and Germany will absorb the largest inflows. The increase in the labor force, and the additional spending to house and support the refugees, could add

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0.1 percent to 0.2 percent to the annual growth rates of these countries.

In China, growth is likely to slow further before stabilizing. Third-quarter real GDP growth in China eased to 6.9 percent year on year from 7.0 percent in the first and second quarters. Investment has slowed across most categories, but especially in real estate, heavy industries, and resource industries. In contrast, investment in high-tech sectors and infrastructure grew by double digits. The continuing digestion of excesses in industrial capacity, housing inventory, and debt will further restrain domestic demand in 2016.

IHS Global Insight Senior Research Director Sara Johnson notes that in other large emerging markets India remains the bright spot in the gloom.

“With inflation receding, Indian households’ real purchasing power will continue to improve,” she says. “Rising domestic demand and easing monetary policy will also boost investment. In contrast, the outlook for both Brazil and Russia has darkened. Brazil’s corruption

Terrorism’s Potential Impact

The extraordinarily horrific events in Paris could certainly have a significant negative effect on consumer confidence—at least in the near term—primarily in France but also elsewhere in Europe, “as people in many other countries will be wondering if they could be the next to suffer such an atrocity,” says IHS Global Insight Chief European and UK Economist Howard Archer.

In a briefing with *SCMR* just after the attacks, Archer says it is likely to significantly hit Paris’ economy in the near term, and there could also be a “knock-on effect” elsewhere in France. “There could also be an adverse impact on tourism in some European countries where people think attacks are most likely to occur—not just in France,” he says. “As horrific as these events are—and these were truly awful—economic activity does tend to be pretty resilient.”

The UK, Spain, and France have all seen their economies a little damaged by terrorist atrocities in the past. “At the end of the day,” Archer concludes, “people have to get on with their lives, and this involves economic activity continuing as normal—and that too is the best way of standing up to the terrorists.”

scandal continues to spread beyond the energy industry, and a lack of cohesion between the executive branch and the National Congress makes it more difficult to fix public finances.”

The Russian recession has deepened and any turning point looks to be put off until early 2017 at best, adds Johnson. Domestic demand has been squeezed by a credit crunch and a renewed burst of inflation as lower oil prices weakened the ruble.

“The global outlook is something of a good news/bad news story,” she says. “The good news is that the (known) threats to global growth will likely not kill the expansion. The bad news is that any acceleration could easily get delayed another year.”

Modal Slump

The Stifel Logistics Confidence Index fell into a fifth consecutive month of decline in October. Significantly, the index has now fallen beneath the neutral 50 point mark for the first time since January 2013, with confidence in both the sea freight and air freight markets plummeting.

The logistics situation for air freight was especially bad, declining by 3.2 points to 45.7. The same trends that influenced last month’s decline are persisting, with weak emerging market growth, China’s financial crisis, and the Chinese shift toward domestic consumption all influencing the trajectory of the index.

While also demonstrating a month on month decline, the six-month outlook for both air and sea freight fell at a lesser rate than that recorded in the September Index, falling by 1.8 points. Nonetheless, the total was 10.4 points lower than at the same point last year, and 9.9 points lower than in October 2013. Sea freight was down more significantly than air, falling 2.1 points to 50.8. This total was 13.9 points lower than that recorded in October 2014.

According to Drewry Maritime Research, the ocean carrier industry continues to be plagued by overcapacity, with Drewry’s director of container shipping research stating that this crisis “will worsen next year,” adding, “were it not for the recent fall in bunker prices, shipping lines would be losing money.”

On the positive side of this month’s results, a noteworthy trend depicted within the index was the encouraging performance of all shipments on routes from Europe to the U.S. A growth trend was visible within both air freight and sea freight, and for the present and expected situations.

It is arguable that the driving force behind this is the weaker valuation of the euro, which has encouraged exports across the Atlantic. For example, Richard

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Grieveson of the Economist Intelligence Unit lent some weight to this assertion by stating: “the U.S., non-Eurozone EU, and Spain have been key in driving exports” for Germany, even as the country’s industrial orders declined in August.

The International Air Transport Association (IATA) observes that air freight volumes were flat in August, with marginal volume gains of 0.2 percent year on year. IATA researchers noted a perceived pause in the downward trend of global trade volumes in explaining the reason for this respite. Within the survey results however, there was no such let-up in the decline.

All lanes were down for the month, with the exception of Europe to U.S., which was up by 1.9 points to 56.3. Europe to Asia noted the biggest fall, down 5.7 points to 39.0, followed by Asia to Europe, which decreased 4.9 points to 42.6. U.S. to Europe declined 3.5 points to 46.1.

For the six-month outlook, the expected situation index for total air freight also decreased, by 1.5 points to 52.7. Again, the Europe to U.S. lane was the only one bucking the downward trend, gaining 2.6 points to 60.9. By contrast, U.S. to Europe witnessed the greatest fall, declining 3.8 points to 49.0. Asia to Europe fell 2.4 points to 51.4, while Europe to Asia lost 2.1 points, amounting to 49.7.

For the present situation, the sea freight index fell further beneath the neutral mark of 50, declining 2.9 points to 46.9. All lanes noted declines in October, with the exception of Europe to U.S., which rose 4.4 points to 52.0 for the month. This saw the lane rebound somewhat, after successive declines in August and September, though it remained beneath the previous year’s total for October. Among the other trade lanes, Asia to Europe noted the steepest decline, falling 7.0 points to 47.1. Meanwhile, Europe to Asia fell by 5.1 points to 43.6, and U.S. to Europe lost 2.4 points to total 45.8.

The expected situation index for sea freight decreased 2.1 points to 50.8. Again, Europe to U.S. grew—by 0.8 points to 56.7—meaning that this lane noted gains across the board.

This was in stark contrast to the other lanes. The greatest decline was recorded in U.S. to Europe, which fell 3.2 points to 46.9. Europe to Asia fell by 2.7 points to 49.8, while Asia to Europe noted a similar contraction of 2.6 points, amounting to 50.2.

There is an increasing risk that the global economy in 2016 will be unable to break out of the 2.5 percent to 3.0 percent growth range in which it has been stuck since 2011.



Currency Concerns

Each month, respondents to the Stifel Logistics Confidence Index survey are asked a unique, “one-off question,” explains John Manners-Bell, CEO of Transport Intelligence, a London-based think tank.

The October one-off question was based around the impact of currency movements on the re-shoring or near-shoring of manufacturing. Specifically, participants were asked whether or not the decline in the euro versus other world currencies has made near-shoring or re-shoring more attractive.

While 36 percent of respondents believed that it has, the largest response group was “unsure,” with 40 percent of the sample selecting this option. The remaining 24 percent thought that the euro’s decline did not make re-shoring or near-shoring more attractive.

Moore Stephens International Limited—a global accountancy and consulting network also headquartered in London—recently conducted a “Shipping Confidence Survey,” which points to a positive reversal of sentiment. According to Richard Greiner, Moore Stephens partner at Shipping Industry Group, it is encouraging to see a graph moving in the right direction.

“Perversely, the main reason for the improved level of confidence revealed by our latest survey may be the same as that which saw the industry’s perceived fortunes equaling a seven-year low in May of this year,” he says. “Volatility works both ways.”

He notes that the World Trade Organization’s global volume forecast represents a rise from 2.8 percent in 2015 to 4.0 percent in 2016. Again, that is good news for shipping. World trade carried by sea is also on the increase and, despite the current difficult economic climate, the longer-term outlook for the industry remains positive as emerging economies continue to increase their requirements for seaborne goods and raw materials.

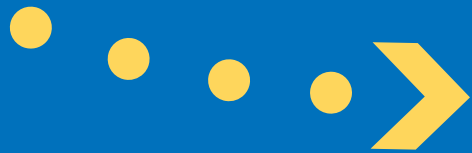
“So the long-term outlook for shipping offers encouragement to existing and new investors alike,” says Greiner. “Those who are not attracted by the longer-term prospects, meanwhile, will undoubtedly exit the industry—and in the process may help solve some of its problems.” ∞

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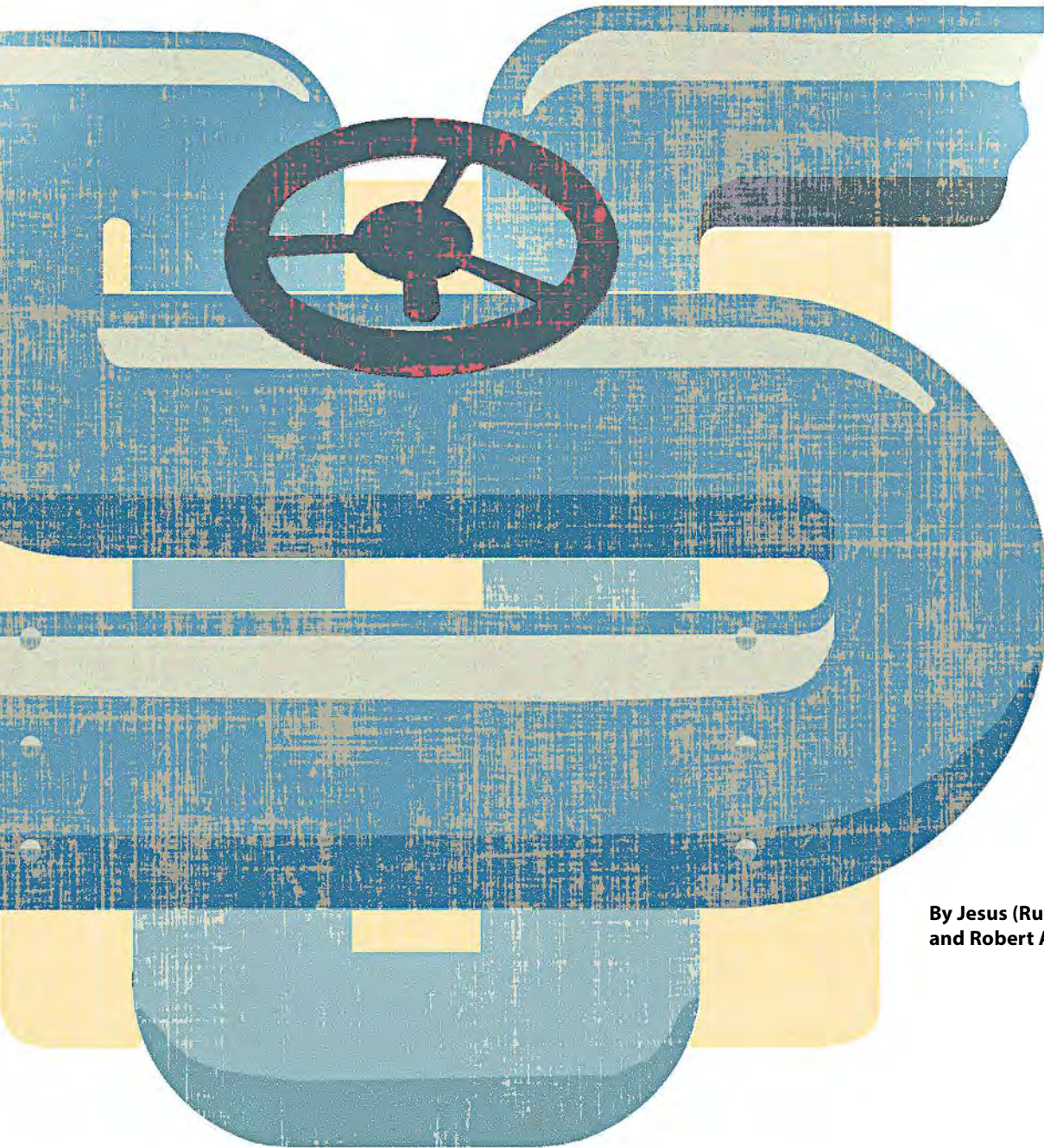
Raising *the* Public Sector *Bar Through* Private Sector Best Practices

Washington Suburban Sanitary Commission (WSSC), one of the nation's largest and oldest public utilities, turned to best-in-class procurement practices from the private sector to deliver big savings to its bottom line.

Who hasn't heard the story about the federal government's acquisition of \$5,000 toilets and \$600 hammers? Then, there's Astronaut John Glenn's famous quip about the Apollo Spacecraft having been provided by the lowest bidder? Over the years, public sector procurement has been characterized as wasteful, inflexible, bureaucratic, and slow—and with some just cause. Public procurement employees are often seen as inflexible, unresponsive, and uncaring, a by-product of their tenure or membership in a collective bargaining organization.

These stereotypes are founded on a few aspects of public sector procurement that differ from private sector procurement. One is the fact that public procurement is tightly confined by government policies, regulations, and state and/or federal laws that are not only difficult to change and update, but which also have the added feature of sending those who violate them to jail. These laws also require potential suppliers to navigate an endless numbers of proverbial hoops





**By Jesus (Rudy) Gonzalez
and Robert A. Rudzki**

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Public procurement is seen as a low bid competitive environment, with high barriers to entry.

while rewarding the successful low bidders with tons of paperwork and other contract compliance requirements.

As a result, public procurement is seen as a low bid competitive environment, with high barriers to entry, dominated by well-entrenched and politically connected mega-companies that provide the government overpriced products and services. Entrepreneurship, innovation, and continuous improvement are not expected and many times are simply not understood by public entity employees. The modus operandi is “if it works, don’t change it” or “that’s the way we’ve always done it.” Negotiations are rare and supplier partnerships (and other private industry best practices) are often discouraged as not applicable, or more times than we would like to admit, as against regulations or illegal. The most familiar, and often cited, performance metric for procurement personnel is the number of years until they qualify for full retirement.

Although this view is presented here with tongue somewhat firmly planted in cheek, it is the predominant view of those who are unfamiliar with the most current trends in public sector supply management—leading trends exemplified by the remarkable transformation story underway at the Washington Suburban Sanitary Commission (WSSC).

Mission and Strategic Priorities of WSSC

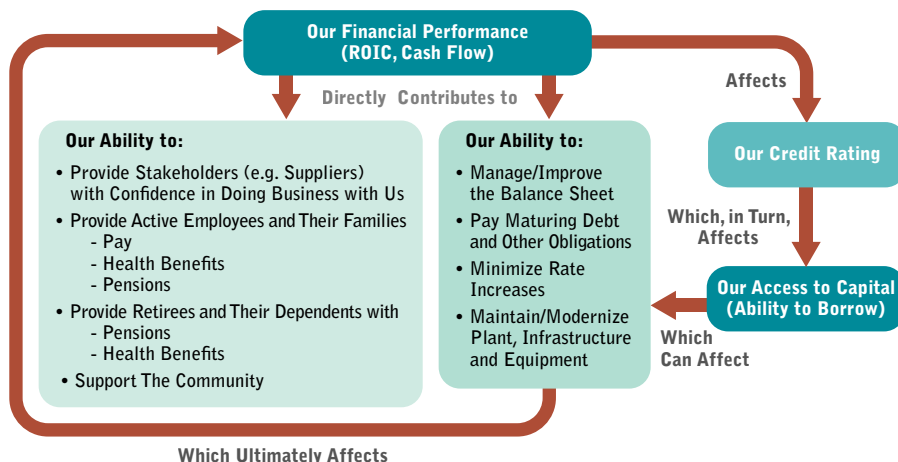
Established in 1918, the Washington Suburban Sanitary Commission is one of the largest and oldest of the nation’s original environmentally “green” companies. Since its founding, this \$1.3 billion dollar (capital and operating budget) bi-county organization has provided water and wastewater services to Prince George’s County and Montgomery County, the two counties that surround Washington D.C. on the Maryland side of the nation’s capital. This well respected public utility manages an infrastructure of nearly 5,600 miles of fresh water pipeline and 5,400 miles of sewer lines. It does so in the face of many challenges common among the country’s aging infrastructure, such as rising repair and maintenance costs, ever-stricter environmental regulations, the rising cost of capital, and a public outcry against year-over-year customer rate and fee increases.

For 97 Years, WSSC has prided itself as a world-class provider of water and wastewater services to its customers. However, in 2012 the CEO/general manager and board of commissioners realized that in order to maintain that status amidst the myriad financial and regulatory pressures, a greater focus would have to be brought to the organization’s supply chain management (SCM) abilities. This focus was communicated to customers, suppliers, and employees

when the commissioners included supply chain management and supplier diversity as one of WSSC’s strategic priorities. Up until this time, the acquisition office (WSSC’s term for the procurement department) was largely seen as an administrative function. As a result, supply management was extremely siloed, completely reactive, and saddled with unacceptably long procurement cycle times. Moreover, a lack of current best practices, tools and technologies, and complacency with outdated methodologies made acquisitions an easy target as the source for any and all of the organization’s ills. Because WSSC could

EXHIBIT 1

Why Financial Performance is Important in the Public Sector



Source: Greybeard Advisors LLC

not be a world class water and wastewater utility without a world class supply management process, a mandate came down to accelerate the transformation by adopting best practices from the private sector.

Key Learnings for the Public Sector Based on Successful SCM Transformations in the Private Sector

To set the stage, it is useful to address upfront a key point: In the public sector, financial performance is important for several fundamental reasons—it affects the credit rating of the entity, which in turn affects the ability (and the cost) to borrow when needed to support current and future operations; it contributes directly to the ability to minimize rate increases, and the ability to modernize and maintain infrastructure; and it also directly contributes to the ability to serve multiple stakeholder groups (as described further in Exhibit 1).

With this background established, let's turn to a more specific SCM-oriented discussion. Every CPO or chief supply chain officer needs to be conversant with the performance improvement framework shown in Exhibit 2. This is the essence of creating a strategic role for supply management that can directly affect financial and operating performance. Let's walk through this framework briefly.

Two important measures of performance are return on invested capital (ROIC) and cash flow. ROIC is calculated by taking the annual earnings of an organization (essentially: revenues minus costs equals earnings) and dividing it by the total capital invested in that entity (long-term debt and stockholder's equity). ROIC is important because it is an indicator of the current health of a business; ROIC needs to exceed the cost of capital. An organization that operates where ROIC is lower than its cost of capital is essentially liquidating itself. In the public sector, this probably will result in increases in taxes or fees, and/or a reduction of services provided—neither of

which is likely to be welcomed by stakeholders.

Improving earnings helps to improve both ROIC and cash flow. Reducing the capital needed to operate your entity also helps to improve ROIC and cash flow. Improving earnings while also reducing the capital needed to run the organization has a powerful compounding effect on ROIC and cash flow.

So how do we go about improving earnings? There are two fundamental ways: revenue enhancements and cost reductions. Supply management can—and should—play an important role in each of those areas, as indicated with examples shown in Exhibit 2. Supply management should, for example, take a leadership role in creating a more responsive supply chain, thereby helping the company to win more business (and increase revenues) from customers. Supply management should also take the lead in applying good processes to better manage all areas of spend, not just those typically assigned to procurement.

So far so good, but how do we reduce the capital needed to run the operation? There are two ways: working capital improvements and capital expenditure improvements. Once again, supply management can play an important role in each of those areas. In many organizations, for example, there is no clear responsibility for analyzing and coordinating supplier payment terms, or inventory consignment programs. These areas are ideally suited for supply management to take a lead

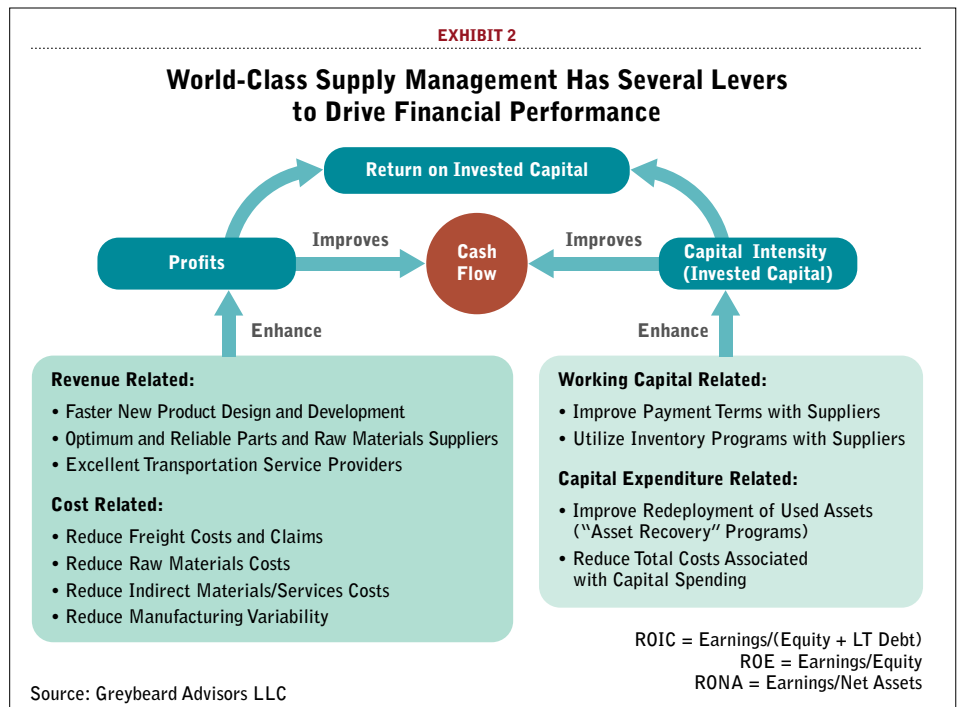
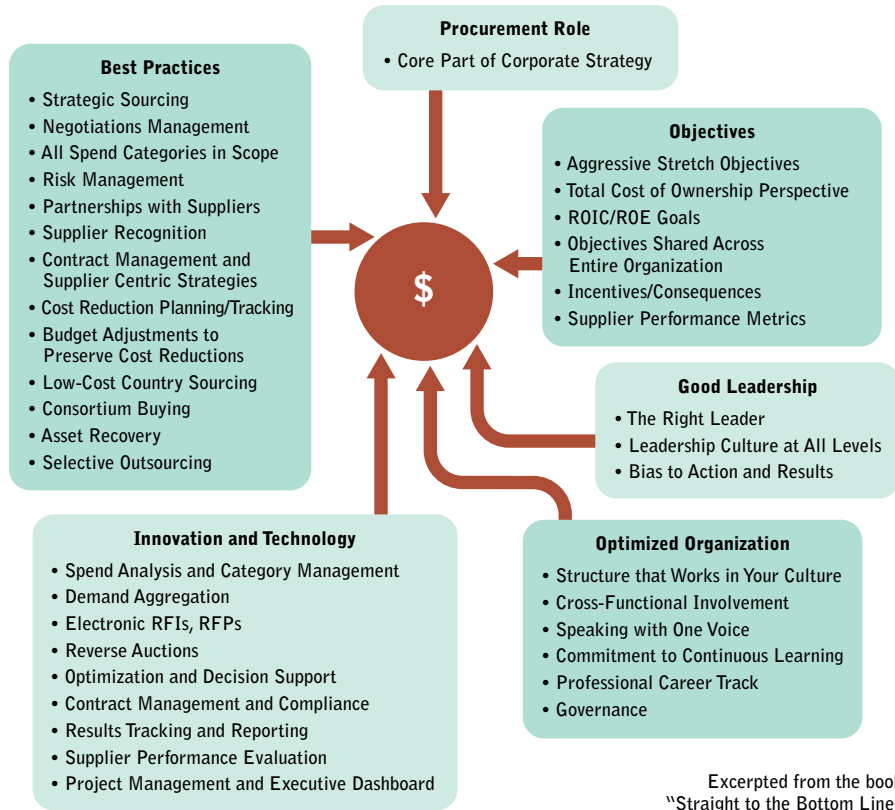


EXHIBIT 3

Achieving World-Class Sustainable Results Requires Attention to Transformation Initiatives Across Six Key Dimensions



Source: Greybeard Advisors LLC

Excerpted from the book "Straight to the Bottom Line" (Rudzki et al.)

executive audience, you relate those improvement opportunities to the company's income statement and balance sheet. Going that extra step allows you to demonstrate the impact of supply management on net income, earnings per share, ROIC, and cash flow—all key areas of interest for senior executives. It's a powerful way to communicate the enormous potential of a transformed supply management organization in the language of senior executives and in a manner relevant to your organization.

Supply management transformation refers to the successful conversion or metamorphosis of supply management from a transaction-based, reactive function to a pro-active, strategic driver of organizational performance—whose input is regularly sought by other areas of the company.

Companies that have successfully transformed their supply management activities into world-class performers have paid attention to six key dimensions of transformation.

role. With regard to capital expenditures, experience demonstrates that the sooner procurement is involved in new projects (even at the concept stage), the better the overall project economics and ramp-up time will be. In addition, redeploying idle assets, or monetizing those idle assets, are useful value creators.

A thorough opportunity assessment for supply management requires a careful and independent evaluation of the improvement opportunities in each of the four categories shown in Exhibit 2. Then, to tie it together for the

As shown in Exhibit 3, those dimensions are procurement's role, objectives, leadership, organization, best practices, and innovation and technology. Underlying these six core dimensions (plus internal and external communications) are more than 30 specific initiatives that ultimately comprise a comprehensive transformation plan. (A more detailed discussion of this "star chart" transformation framework appears in Chapter 3 of the book *Next Level Supply Management Excellence*, by Robert A. Rudzki and Robert J. Trent.



The sooner procurement is involved in new projects (even at the concept stage), the better the overall project economics and ramp-up time will be.



For the first time in the almost 100 years of the Commission's history, a single set of regulations would govern the procurement function at WSSC.

With that framework in mind, let's turn now to WSSC's groundbreaking experience transforming its SCM activities.

The Initial and Ongoing Success of WSSC's Transformation

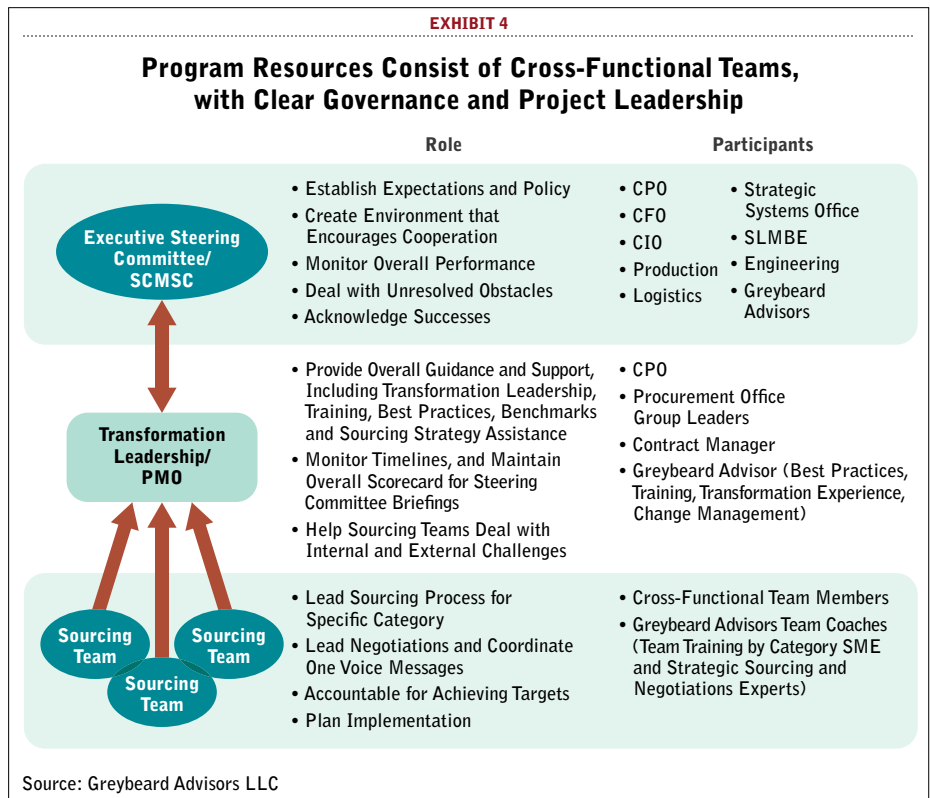
In 2012, WSSC's Acquisition Director began to develop a supply management transformation process designed to change the supply chain management function from a siloed, reactive, low-bid approach to a collaborative, data-driven, "total cost of operations" approach.

As a precursor, a set of procurement regulations was adopted by the Commission. Prior to that, the acquisition process was governed by a disparate set of internal memoranda, standard procedures, policies, and an outdated purchasing manual. The procurement regulations, modeled after the American Bar Association template, were designed to be concise and comprehensive to address current needs, yet flexible enough to accommodate the various future unknown scenarios, circumstances, and needs. For the first time in the almost 100 years of the Commission's history, a single set of regulations would govern the procurement function at WSSC. Along with these regulations, the acquisition office was changed in name to the procurement office and the acquisition director became the chief procurement officer (CPO); both to better represent the new direction for the supply management function at WSSC.

Once the regulatory barriers to world-class supply management had been addressed, the acquisition director enlisted the help of well-respected supply management advisors

to conduct a comprehensive assessment of current operations, provide a gap analysis between the current state and world-class supply chain management (SCM), and develop a detailed roadmap (and a business case) for a sustainable supply chain management transformation. The crucial first step that everything else is built upon—the assessment—was conducted based on Graybeard Advisors' framework, reflected in Exhibit 3.

The assessment did indeed confirm that the procurement office was viewed as a problem for the respondents because of long cycle times, inconsistent requirements, poor communication, and a lack of understanding of their clients' day-to-day needs and operations. Using the gap analysis, a detailed roadmap was developed. The CPO and the advisor presented three roadmap options to the CEO and general manager: slow, medium, and fast. The GM approved the fast roadmap with a comprehensive transformation





Team members realized that a seemingly unsubstantial decision by them could morph into a much larger dilemma throughout the supply chain.

initiative designed to deliver a total ROI of 700 percent within 36 months, while building and enhancing internal capabilities.

In order to ensure the success of the SCM initiative and to provide governance over its activities, a supply chain management steering committee (SCMSC) was established. In addition to the CPO, committee members included the CFO, interim chief operations officer, chief of production, and chief information officer. Additionally the steering committee was supported by the director of strategic systems and the chief of staff as the committee's champion. The committee's specific roles included approving strategic sourcing initiatives, removing barriers, providing resources, and communicating the progress of the SCM transformation initiative to executive leadership and the board of commissioners (Exhibit 4).

As discussed previously, WSSC has a long organizational history that includes growing into one of the country's most respected and largest water and waste-

water utilities. Along with this proud history came a unique organizational culture: Changing this culture proved to be the most significant barrier to achieving a sustainable SCM transformation. At WSSC, the SCMSC had two initial tasks: The first was to develop the first wave of strategic sourcing teams. These teams had a scope involving an area of spending (as described below), and were comprised of cross-functional team members. The team was charged with understanding the supply market, understanding the internal users' needs, establishing a sourcing strategy and negotiations strategy, executing that strategy, and implementing the new supply agreement and actively managing the supplier relationship. The second task was to gain approval for a redesign of the procurement office. These two tasks proved to be the strongest drivers of cultural change at WSSC.

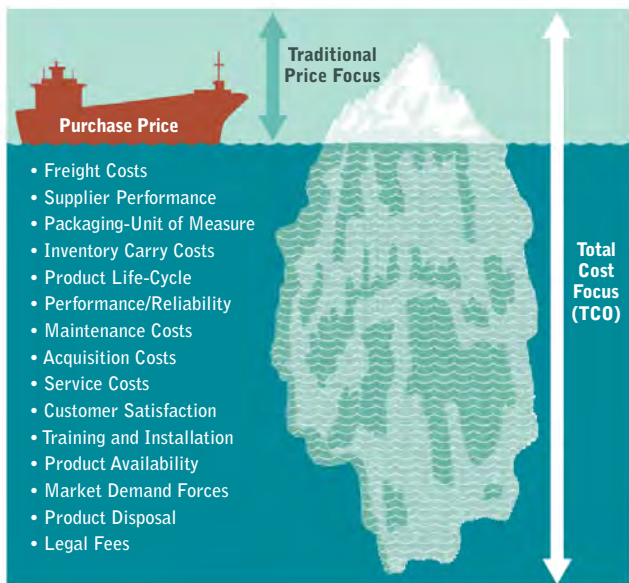
In August of 2014, the procurement office was formally re-organized into a procurement center of excellence. The focus prior to this redesign had been primarily category based, such as goods and services versus architectural, engineering, and construction. The new structure provided for four distinct groups, each with a clear tactical or strategic focus.

In this new structure, the strategic sourcing group was responsible for facilitating all strategic sourcing team initiatives. The procurement group was responsible for more tactical day-to-day operations and problem-solving. The operations and administration group was responsible for "back office" processes such as the procurement office budget, procurement card program, bonds and insurance, procurement systems and procedures, diversity liaison, materials management liaison, and supply risk. The contracting officer representatives group was responsible for supporting field operations by being procurement subject matter experts with a goal of reducing bottlenecks by addressing items that would otherwise be directed to the CPO.

The new WSSC procurement regulations provided a flexible regulatory framework that the transformation could function within. The procurement office re-design provided a change from a tactical (reactive) to a strategic (pro-active) supply management approach. Building upon those foundation blocks, implementation of strategic sourcing and strategic sourcing teams, along with

EXHIBIT 5

Best Practices Focus on Total Cost of Operations (TCO), Not Merely Price



Source: Greybeard Advisors LLC

its reliance on data and fact driven decision making, its entrepreneurial focus on total cost of operations, and its execution through cross-functional collaborative teams, provided the single most enduring result with respect to changing the supply management culture at WSSC.

Cross-functional teams in particular contributed to a change in culture. Team members realized that a seemingly unsubstantial decision by them could morph into a much larger dilemma throughout the supply chain. As a result, team members began to make decisions based on the total cost of ownership (TCO) impact on WSSC (Exhibit 5) and not just whether the decision was good or bad for their department. Gary Gumm, WSSC's interim chief operations officer, and an active member of the steering committee, viewed the positive effect on WSSC's culture to be at least as important—if not more important—than the financial successes of the teams.

Strategic sourcing and strategic sourcing teams are now the primary activity that generate cost reductions and contribute to ROI. The teams follow Greybeard Advisors' six phase Strategic Sourcing & Negotiations Management (SSNM) process with the SCMSC providing oversight and approval at each phase-gate. Each cross-functional team is composed of WSSC staff from different operating departments (engineering and construction, production, utility services, logistics) as well as support departments members (finance, IT, strategic systems, diversity office) and a member of the procurement office to facilitate the process.

Since the inception of strategic sourcing, WSSC has initiated seven sourcing teams. These include (1) prestressed concrete cylindrical pipe (PCCP), (2) water main rehabilitation, relocation and replacement, (3) ductile iron pipe, (4) bulk chemicals, (5) fleet, (6) water tank rehabilitation and (7) bio-solids management. So far, these teams have delivered cost reduction opportunities in excess of \$15 million and cost avoidance in excess of \$10 million. Additional teams are being formed as we go to print.

Interestingly, all of the strategic sourcing teams started with the same mindset: to fix what was wrong in the procurement process. Although each team had its own set of market conditions, technical limitations, and

Successes abound

Gary Gumm, WSSC's interim chief operations officer, and an active member of the steering committee, viewed the positive effect on WSSC's culture to be at least as important—if not more important—than the financial successes of the teams.

time constraints, each team shared a common “aha!” moment when, as a result of the rigorous process, team members came to realize that a key root cause of their team's problems were not found in the procurement office, but rather were as a result of pre-sourcing activities (e.g. poor planning, coordination, or poorly defined requirements) and/or as a result of post-award activities (e.g. lack of implementation plan, or poor contract compliance monitoring).

In the end, through the adoption and embedding of private sector best practices, including a robust, cross-functional SSNM process, the supply chain management function at WSSC was transformed from everyone's favorite scapegoat to a leader of culture change at WSSC.

Final Words of Advice for Public Sector CFOs and Procurement Leaders

Management guru and author C.K. Prahalad always told executives to think big. “Set ambitious goals,” he advised, “and then figure out how to mobilize the resources to achieve them—rather than the other way around.” He added: “Most organizations limit themselves because they focus primarily on what they believe they can afford.”

The authors hope that the ground-breaking SCM transformation at WSSC can inspire other public sector organizations to break out of conventional thought patterns, dramatically improve their financial and operating performance, and enhance their capabilities to achieve their public sector missions. ☺☺

**Note: this article includes an excerpt from the book Next Level Supply Management Excellence, by Robert A. Rudzki & Robert J. Trent, J. Ross Publishing. The excerpt relates to Exhibits 2 and 3.*

Key Distribution of **TOP** Omni-

It wasn't too long ago that companies painted clear dividing lines between their brick-and-mortar and e-commerce distribution operations and relied on a "never the twain shall meet" philosophy. Their respective divisions handled order taking, fulfillment, customer service, and returns; and software platforms were dedicated to one side or the other—rarely both. Given their own physical space and systems or outsourced to third-party logistics providers, e-commerce operations had yet to prove their long-term value and, as such, were looked upon as being temporary and fleeting.

Fast-forward to 2016 and those sentiments and assumptions have flipped, and done so rather dramatically. With U.S. e-commerce sales expected to reach nearly \$500 billion by 2018 (up from \$304 billion in

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Omni-channel retailing has turned traditional distribution upside down. Based on a recent survey of 18 top retailers, we look at how the best are maximizing productivity in this new environment.

Strategies

By Ian Hobkirk

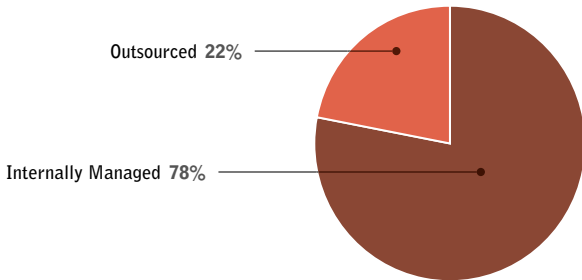
channel Retailers



Alberto Ruggieri

EXHIBIT 1

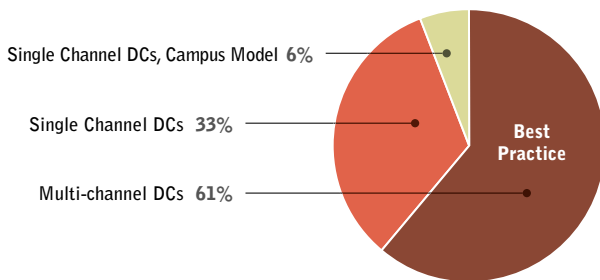
Outsourcing Strategy for Direct-to-Consumer Channel



Source: Commonwealth Supply Chain Advisors, 2015

EXHIBIT 2

Facility Strategy for Omni-channel Distribution



Source: Commonwealth Supply Chain Advisors, 2015

2014), according to eMarketer, the race is on to develop integrated omni-channel distribution strategies to effectively manage both on-line and off-line transaction growth. To find out how companies are tackling this lofty goal, Commonwealth Supply Chain Advisors recently surveyed 18 of the world’s top retailers to learn about their omni-channel strategies and practices. Here are the nine conclusions we came to, based on the survey’s results.

1. They Manage e-Commerce Internally

For starters, omni-channel companies are pulling away from third-party logistics providers (3PLs) as partners in e-commerce and bringing this component of their distribution operations in-house. Fourteen of the 18 companies surveyed currently manage their own e-commerce operations. The other four organizations plan to discontinue their 3PL relationships and bring e-commerce distribution in-house within the next 24 months.

As noted earlier, a major reason for this shift is that the e-commerce marketplace is becoming more

stable and predictable. Companies that formerly outsourced e-commerce often did so because they had no reliable information as to whether this channel would be “here to stay” for their company, or what volume levels would be experienced. With these direct-to-consumer channels more firmly established within major retailers—and best practices evident within the industry—many retailers recognize the value in taking direct control of the e-commerce channel.

2. When Possible, They Operate Omni-channel Facilities

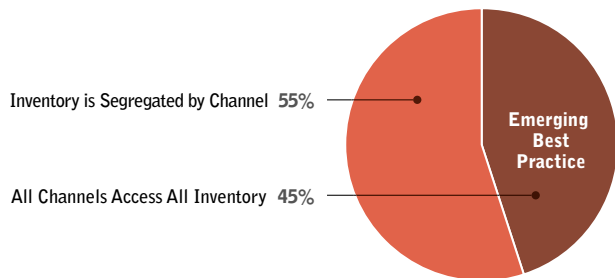
Of the companies surveyed, only three of them operate (or plan to operate) single-channel DCs dedicated to either e-commerce or retail/wholesale. The other 15 organizations operate (or plan to operate) omni-channel DCs, with 11 of the companies surveyed currently doing so. The remaining retailers have imminent plans to convert to this model.

3. They Practice “Intelligent Sharing” of Inventory Across Channels

From the group of 11 companies already operating omni-channel DCs today, five of them allow complete access to all inventory by all channels. This practice eliminates the need for redundant safety stock of inventory and frees up working capital. Six of the companies utilize a “segregated inventory” strategy, and don’t allow complete availability of inventory to every channel. However, these firms do have business rules and processes in place giving channels access to inventory reserved for other channels (i.e., in the event of a stock-out). This “intelligent sharing” model ensures that there is sufficient inventory to support planned e-commerce promotions, while still enabling availability for retail and wholesale orders if stock levels run low.

EXHIBIT 3

Inventory Strategy for Omni-channel Distribution



Source: Commonwealth Supply Chain Advisors, 2015

4. They Tap Their Shared Labor Pools

Labor is a big concern for retailers that want to optimize their brick-and-mortar and e-commerce distribution operations. By co-locating the channels under one roof, shared labor pools can be used to cover both ends of the operation. This is particularly valuable for retailers that scramble to fill positions during the fourth quarter, and then lay off workers when business slows.

Because e-commerce and brick-and-mortar have different “holiday” seasons, omni-channel retailers must push to get product into their stores in October and November. Then, the e-commerce holiday rush finds them picking, packing, and shipping a high vol-

ume of orders for events like Cyber Monday, which occur later in the season (after the goods have been shipped to the brick-and-mortar stores). Additionally, the popularity of gift cards has led many consumers to redeem their presents in January, creating yet a third surge that must be accounted for in the retail and e-commerce channels. Managing these three surges separately requires a lot of labor, but if operations are consolidated under one roof it’s easier to spread the labor pool across all three. The same employees can be used throughout the fourth quarter (and into January) to fill orders as volumes ebb and flow for each particular channel.

Software Strategies for Omni-channel

Generally speaking, in an omni-channel environment, each of the below software systems should play the following roles:

ERP:

- ◆ The ERP should manage:
 - P.O. management
 - Sales order management
 - Master inventory of record
 - Segregation, earmarking, and soft allocation of goods by channel
 - Ship confirmations
- ◆ The ERP should NOT manage:
 - Bin-level inventory tracking
 - Communication with material handling equipment

WMS:

- ◆ The WMS should manage:
 - Receiving
 - Put-away
 - Bin-level inventory tracking
 - Cycle counting
 - Overall orchestration of order fulfillment
 - Direction and confirmation of picking processes
- ◆ The WMS should NOT manage:
 - Machine-level interaction with material handling systems
 - Visibility and control of sorters
 - Visibility into workflow within MHE systems
 - The WMS may not be the best system to manage inventory at the bin level within goods-to-person picking equipment

WCS:

- ◆ The WCS should manage:
 - All materials handling equipment in the facility (inputs, outputs, etc.)
 - Visibility of status of workflow in MHE systems
 - Dynamic insertion of high-priority orders into the workflow
 - Rapid communications between devices such as sorters, printer applicators, etc.
 - The WCS should not attempt to manage the typical WMS functionality listed above

DOM (Distributed Order Management)

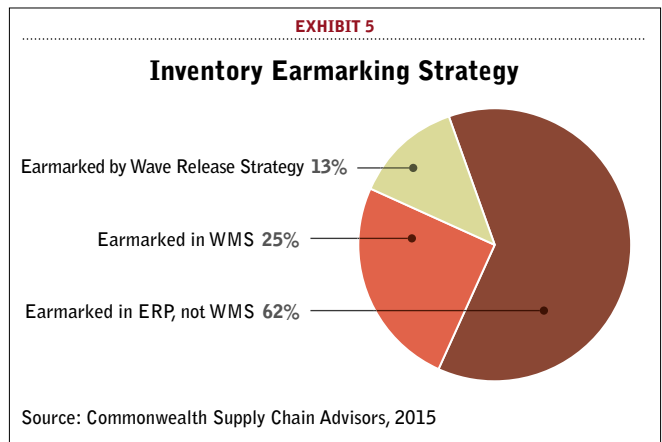
- ◆ Further discussion should be held as to the optimal role for a Distributed Order Management (DOM) system in the warehouse
 - ◆ DOM systems are used to make decisions about the best location from which to fill an order
 - ◆ As an example, it may be desirable to fill e-commerce orders from the closest DC to the consumer. However, if some or all of the lines required do not exist in the closest DC, then key decisions must be made, including:
 - Should the order be cancelled or have lines back-ordered?
 - Should the order be delayed until inventory arrives at the closest DC?
 - Should the order be split and filled from two DCs—the closest DC filling as much as possible from stock, and then the next closest DC providing the remaining items?
 - Should the order be shipped from the closest DC that can completely fill it?
 - Does it make sense to fill the order from a retail store that has the required inventory?

5. They Implement Common Bins for Piece-picked, Multi-channel SKUs

Out on the warehouse floor, top retailers are using innovative strategies to address the needs of their retail and e-commerce operations. For example, most are using common bins for piece-picked, multi-channel SKUs. Rather than having the same SKU appear in multiple forward pick bins depending on the channel requirements, it almost always makes sense to consolidate the forward pick supply of an SKU into a single bin that all channels can access. For our survey, all 11 of the companies that were operating omni-channel DCs were using common bins for the same SKU across multiple channels. Because only a single bin is used for each SKU, this strategy reduces both space and labor requirements because only one set of bins must be replenished from overstock.

6. They Use “Earmarking” of Inventory by Channel

Even when common bins are utilized, companies operating omni-channel facilities are reserving, or “earmarking,” a certain percentage of orders within a bin for specific channels. Several key IT strategies facilitate this type of earmarking, including: reserve by channel in the ERP system; reserve by creating “dummy” or bulk orders for prod-



7. They Test out Different Pick Methodologies for Different Order Profiles

Commonwealth’s experience in omni-channel and our recent survey reveal that in most cases, although inventory for different channels is picked from the same bins, the methodology used for picking and/or packing orders is very different. Half of the companies surveyed are using the same pick methodology for all channels and half use separate pick methodologies by channel.

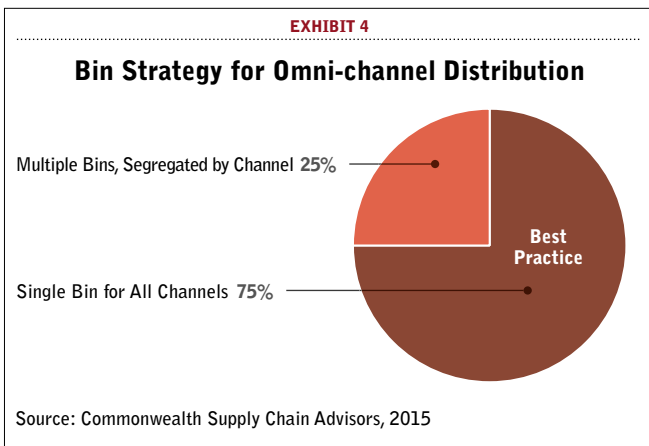
Some typical processes for picking and packing e-commerce orders that usually have smaller line counts than retail or wholesale orders (studies have shown industry averages to be between one and two lines per order) include:

- **Sort and put.** This strategy involves picking large batches of product and using a unit sorter, such as a tilt-tray sorter to sort the goods, with multiple e-commerce orders sorted to a single chute and then separated by order. This secondary step uses a put process, possibly in conjunction with a put-to-light system.

- **Pick and put.** This strategy involves a similar concept to sort and put, without the use of a unit sorter. For example, batches of product could be picked to large totes and conveyed to put stations. The stations could be configured in a “put wall” scenario with a put-to light system if required. The batch would be separated into individual orders at this time.

- **Cluster pick.** This process involves picking groups or “clusters” of e-commerce orders directly to discrete containers with no secondary put process required. It could be executed with a cart-based picking system, or potentially with a conveyor based picking system. The orders would either be picked into totes for downstream re-packing, or into the actual shipping containers to minimize the amount of secondary handling required.

Retail and wholesale orders can often be picked in



uct by channel; reserve by using separate vendor POs for the same SKU (note: this is a less desirable method as it requires significant knowledge of demand forecasts at the time of vendor order placement); and reserve by segregating wave release (i.e., release all wholesale orders first, release all e-commerce orders first, etc.).

Earmarking is particularly useful for a company that ships wholesale to a large number of stores (versus the retailer that can more easily control inventory, pick in efficient batches, and optimize its DC operations).

batch mode, with large quantities of the same SKU picked at once, and then separated by order or by store. For these channels, the favored pick methodologies are cluster pick to conveyor, pick and pass with zone routing or batch pick to conveyor, and unit sort by store.

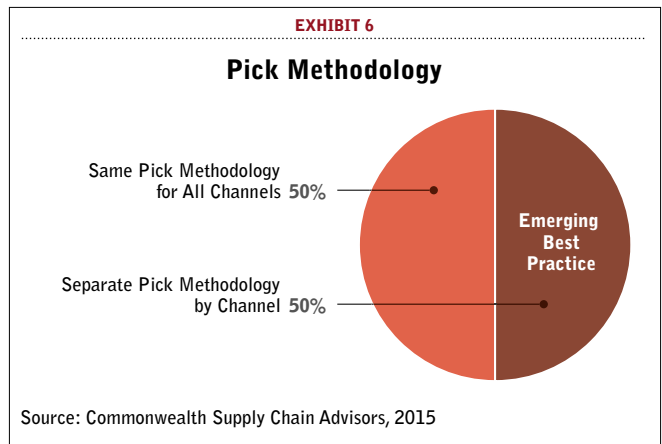
8. They Rely on Flexible Execution Strategies

With wholesale and retail orders, where there may be several days available to fill an order, the focus in distribution is often on creating very large batch sizes to achieve high rates of pick efficiency. This strategy can create real challenges in an e-commerce environment. If high priority e-commerce orders are received, it can be very problematic to have to wait until a large retail wave is completed before these orders can be picked. To properly accommodate these orders, either smaller overall waves must be compiled, or some means must be devised to dynamically insert high priority orders into the wave.

Top retailers are taking the opportunity to dynamically insert high priority orders into the batch or work-queue without having to wait for the completion of a large picking wave/batch. For example, firms can effectively balance the large batch size required for efficient retail order picking with the need for flexibility in quickly picking high priority e-commerce orders. The ability to insert these orders into a break in the workflow is a key requirement to balance competing needs across channels. In order to enable more complex wave-building concepts, companies must utilize a robust WCS system capable of rapidly re-compiling a fulfillment plan “on the fly” in the midst of an active wave.

9. They Leverage Technology

Very few (if any) of the strides being made in today’s multi-channel warehouses would be possible without the help of technology. Generally speaking, in an omni-channel environment, top retailers are using



enterprise resource planning (ERP) for PO management, sales order management, and master inventory of record; Warehouse Management Systems (WMS) for receiving, put-away, bin-level inventory tracking, and cycle counting; Warehouse Control Systems (WCS) for all materials handling equipment, workflow visibility, and dynamic insertion of high-priority orders into the workflow; and distributed order management (DOM) to make decisions about the best filling locations (see sidebar).

Preparing Your Company for Omni-channel

For companies looking to emulate what the world’s top retailers are doing to optimize their omni-channel distribution operations, the best advice we can give is: Start now. A common trap that we see companies fall into is that they wait until it is too late to start planning. At Commonwealth, we have had countless conversations with operations executives who have recently lived through the pain of an unexpectedly large holiday season. When the madness is over in January, they convince the executive team that a change needs to be made. By the time an actionable plan is in place, it is mid-summer and there is not enough time to implement the changes before the next holiday season. They then have to live through yet another season of madness before they can safely implement the plan.

By taking a good, hard look at how you’re handling each channel now—and using the advice outlined in this article to figure out where the gaps might exist and how to fill them—you can start exploring your options and begin planning for the future. Develop a plan and have it ready to implement when the busy season is over. ☺☺

Value-added Services (VAS):

The requirements are very different for e-commerce orders. Typical retail and wholesale VAS tasks like hanger insert or sensor tagging aren’t usually necessary for e-commerce orders (although retailers that utilize a true omni-channel distribution strategy, which allows consumers to buy online but return to store, often still require retail price tags and bar codes to be applied to e-commerce items). In fact, e-commerce orders often involve their own set of VAS tasks, which may include poly-bagging, gift wrapping, and other features.

How They Did it:

Service and Price

Regardless of the mode, shipping is complicated. Shippers may have limited control over freight expenses due to their intrinsic complexities. Meanwhile, freight forwarders often claim they have limited control over the complex cost structures associated with shipping, and shift most of the risk back to shippers, who are typically in a weak negotiating position while trying their utmost to satisfy their customers with timely—and on-time—deliveries.

That was certainly the case for those of

us working with logistics and freight forwarders at Knorr-Bremse Asia Pacific Ltd. Like many shippers, we often found we were trading lower costs for inadequate service levels that satisfied no one in our organization. In order to address those constraints, we introduced a structured program that provides feedback from our internal operations departments to our freight forwarders about their performance, and links a quantifiable “service factor” to the transportation provider who is assigned an order. The service factor is the

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To get the most value for its transportation spend, Knorr-Bremse Asia Pacific Ltd. created a rating system that links the performance of its logistics providers with their bids for transportation lanes. The result: Service has been improved; costs have been contained; and logistics departments, freight buyers, and freight forwarders are working together on continuous improvement.

Come Together

By Sebastian Schmidt-Eckert



measure we created to rate service level performance.

The result: In order to gain more of our business, freight forwarders are motivated to cooperate and strive to deliver continuous improvement on their service factor. That has allowed us to eliminate penalty clauses and create a culture of cooperation that provides a new view on the value spent on freight deliveries. This is how we did it.

A History of Innovation

Based in Munich, Germany, the Knorr-Bremse Group is the world's leading manufacturer of braking systems for rail and commercial vehicles. For more than 110 years now the company has pioneered the development, production, marketing, and servicing of state-of-the-art braking systems. In the rail vehicle systems sector, the product portfolio also includes intelligent entrance systems, HVAC systems, power conversion systems, control components, and windscreen wiper systems, as well as platform screen doors, friction material, driver assistance systems, and control technology. Knorr-Bremse also offers driving simulators and e-learning systems for optimum train crew training. In the commercial vehicle systems sector, the product range includes complete braking systems with driver assistance systems, as well as torsional vibration dampers, powertrain-related solutions, and transmission control systems for enhanced

As a shipper, we are tasked first and foremost with doing whatever we can to satisfy the needs of our customers even while we must control costs. It is a delicate balance.

energy efficiency and fuel economy.

In 2014, the Knorr-Bremse Group posted €5.2 billion in revenue. Our expertise ranges from the systems level right down to the individual components—and efficient overall solutions. One example is the brake control system for the Chinese CRH380 B high-speed train, which was designed to cope with temperatures down to -40°C and expands the geographical scope for the module's use.

With a global footprint, the company is organized into three regions in the Americas, Europe/Africa, and Asia. The Asian Group is headquartered in Hong Kong. Freight services for the region are procured through a lead buyer team located in Suzhou/Jiangsu, China. The contracted freight services that led to the initiative described in this article were sourced to import parts and components from Europe and the U.S. to supply

Knorr-Bremse factories in Beijing, Qingdao, Dalian, Wuxi, Suzhou, Shanghai, Chongqing, Guangzhou, Hong Kong, Sydney, and Tokyo. Those imports are critical to our manufacturing operations in Asia.

Beyond Cost

As with any shipper, Knorr-Bremse Asia Pacific Ltd. is under tremendous pressure to satisfy the needs of its external and internal customers. In this instance, our internal customers were factories in the Asia region that relied on the timely delivery of parts and components to meet manufacturing schedules. As such, the lead buyer team's goal was fast and reliable service that met the needs of the plants.

At the same time, when it comes to the different players in the logistics supply chain, including the service providers and freight forwarders, the lead buyer team had the least amount of power to influence costs. After all, many rates are involved, such as those for pick-up, document checks, the mode selected, seasonal mark-ups; fees for packing, loading, and consolidation; and, of course, fuel, airport fees, airport taxes, unloading, customs clearance, duty, import tax, storage charges, terminal charges, and express charges all factor into the cost of moving goods. While a freight forwarder may have influence over some of those components, such as pick-up or consolidation costs,



fuel rates are set by markets; import taxes, customs clearance, and duty charges are determined by governments; and airport rates vary from facility to facility. And, while a shipper is the customer, even payment processes may be beyond their control: In cer-

tain instances, a freight forwarder can claim that a late or damaged delivery was affected by external influences, or claim *force majeure* (generally intended to include occurrences beyond the reasonable control of a party), and still insist on timely payment for lackluster service.

Meanwhile, as a shipper, we are tasked first and foremost with doing whatever we can to satisfy the needs of our customers even while we must control costs. It is a delicate balance, and too often the effort to control costs is in conflict with service level agreements. When that happens, no one is satisfied.

Risk = Cost + Service

Risk = Cost + Service: This was just the situation we faced at Knorr-Bremse Asia Pacific Ltd. about five years ago. As buyers of freight services, we needed to get con-

trol over the cost and service level of our shipments, especially imports from Europe and North America. At the same time, our expertise was in mechanical engineering and not freight forwarding. We were not able to trace or understand the dynamics of the different cost elements of a freight transaction. We believed the freight forwarder was the expert in the best position to manage the risks involved. As a result, we expected a complete package of services from freight forwarders, including the assumption of the risks involved in shipping.

What are those risks? Primarily, they are the price we as a shipper are willing to pay for freight services, and the quality of service we receive in return. One has an impact on the other. For instance, service quality is one way vendors keep costs low, especially new vendors: They often offer a very low bid in order to win business only to find that they are unable to meet our service level requirements. Or, they skimp on service in order to preserve their margins. Our risk is that having accepted the low bid to control our costs, we end up suffering from production disruptions because of delayed shipments. At the same time, the transportation provider is at risk from price reductions because they can lose margins if some of those cost components beyond their control go up, such as the cost of fuel or airport rates. Price reductions may also present an opportunity for a shipper to lock in some savings and shift some of the risk to the freight forwarder. Again, it is a delicate balance.

Development of a New Approach

As we looked at this situation, it made sense to develop different strategies to manage the risks of cost and service: The initial concept was that service could be addressed offline through detailed discussions with our lead buyer team in China, our operations departments that depended on timely deliveries, and the freight forwarders. Meanwhile, the price could be determined in a highly competitive situation, like e-bidding under limited time.

We rolled out this new strategy in 2011, when we launched a bidding process: The most important rule was that all quoted prices must be fixed for six months and include all fees and rate changes that might occur during that time. Initially, this was done in two phases.

In the first phase, we organized manual biddings and

Price reductions may also present an opportunity for a shipper to lock in some savings and shift some of the risk to the freight forwarder. Again, it is a delicate balance.



then began to work with the low-cost bidder. Soon, however, we discovered that low prices often led to low levels of service. Increasingly, the lead buyer team received complaints from the operating departments in our local factories about late deliveries and deviations from promised ETAs. By the end of that first phase, some of the factories were refusing shipments from the vendors selected by the regional lead buyer.

That led to phase two, in which we established performance KPIs with the vendors and agreed on

EXHIBIT 1

Service Feedback Questionnaire

A. Service Management

- Do we get early warnings of potential problems or process nonconformity?
- How is the general capacity planning?
- Do they provide the failure analysis and valid corrective action plans?
- How is their corrective action implement quality?
- Do they provide the capacity planning during the spring festival and other holiday?

B. Rate Management

- How is the data quality of the rate sheets?
- Do we get lane quotations on time?
- Does their cost competitive compare to the marketing level?
- Do we receive frequent changes to the rate agreements?
- Do they spend the right invoice based on the bidding agreed rate?

C. Communication

- Have delay, damages, complaints etc. been reported on time?
- Have special events been reported on time?
- Do they have the system/manual tracker?
- Can they provide the necessary shipping information as your request?
- Is track and trace timely updated?

D. Key Account Management

- Do they provide adequate failure analysis support?
- Are there open and honest channels of communication?
- Is their local contact always available for you?
- Does their local contact achieve all requirements?

Note: Each Question is Scored 1-5, Maximum for A.B.C.D. is 24 Points

Source: Knorr-Bremse

contractual penalties for service short falls. While that looked good on paper, the reality was that when service short falls resulted in penalties, we had unpleasant conversations about root causes and responsibilities and vendors were less willing to cooperate.

Clearly, something had to change. In response, we developed a concept to link the service profile of our logistics providers directly upstream to the bidding process. Through meetings with our operating departments and freight forwarders, we developed a “supplier service evaluation” questionnaire that we continue to use today. The questionnaire considers four crucial areas: service management, rate management, communication, and key account management (See Exhibit 1).

There are four to five questions about each of those areas and each question can be answered with a score of 1 to 5. Finally, each of the four service areas is weighted with a percentage and a maximum score of 24. That score is then translated into a “service factor” from 1.0 to 1.96 (Exhibit 2). That factor is applied to the quoted price of each vendor.

This process was transformative. With the questionnaire, the lead buyer team could now assign a monetary value to the service level from a transportation provider that became an element of the bid. On this basis, the price for the pure transportation can be clarified independently in a highly competitive e-bidding process (Exhibits 3 and 4) without compromising on service levels anymore. The lead buying team could determine if a low bid was truly worth the cost of poor performance, or if a higher bid might deliver greater value when service was factored into the equation.

Implementation

Since the implementation of the questionnaire, the operating departments assess all existing vendors regularly, and each knows their service factor. New vendors entering the bidding procedure for first time are required to perform a self-assessment. The result of their self-assessment is multiplied with a newcomer malus of 1.4.

Today, we hold e-bidding events every six months with the original criteria that all quoted prices must be fixed for six months and include all fees and rates that might occur. Now, let us assume three participants quote for a specific lane: One vendor is rated with a service factor of 1.04, the second with 1.22, and the 3rd vendor is new and will be rated 1.4. The result of the

EXHIBIT 2

Service Factor Computing

Supplier Final Ranking	Service Factor	Evaluation Score	
If you are a known supplier, your final ranking is:			
$\text{Final Ranking Rate} = \frac{\text{Submitted Rate}}{\text{Service Factor}}$	1.00	24	
	1.04	23	
	1.08	22	
	1.12	21	
	1.16	20	
	1.20	19	
	1.24	18	
	1.28	17	
	If you are an unknown supplier, your final ranking is:		
	$\text{Final Ranking Rate} = \frac{\text{Submitted Rate}}{\text{Service Factor}} \times 1.4$	1.32	16
1.36		15	
1.40		14	
1.44		13	
1.48		12	
1.52		11	
1.56		10	
1.60		9	
1.64		8	
1.68		7	
Remarks:			
• Above mentioned service factor according to table on the right.	1.72	6	
• Rounding method will be used.	1.76	5	
• The supplier selection will refer to above final ranking rate.	1.80	4	
	1.84	3	
	1.88	2	
	1.92	1	
	1.96	0	

Source: Knorr-Bremse

quote is shown in Table 1 below.

TABLE 1

Vendor	Quote (\$)	Service Factor	Evaluated Price (\$)	“Cost” for Service Deficiencies (\$)
#1	100	1.04	104	4
#2	80	1.22	98	18
#3	76	1.40	106	30

Source: Knorr-Bremse

With this approach, the service deviation now has a defined cost. As a shipper, we have to factor this in as a cost of doing business. At the same time, the vendor’s quote is less attractive by the same amount.

Impact

With the tool in place, the Knorr-Bremse Asia Pacific lead buyer team is bidding regularly for 20 main lanes and 300 sub-lanes around the globe. If an established vendor tries to crack the bidding by low-balling prices, it is conceivable that the vendor could win a number of lanes. But, as a rule, we will only grant one pilot lane to a new vendor, even if that vendor wins more. Thus, the risk for Knorr-Bremse—as well as the risk

for established vendors who know their costs—is kept to a minimum. If that new vendor demonstrates good performance during the first year on a pilot lane, the concerned operating departments can assess the service performance. Thus, a service factor based on real performance is being set up for application in the next bidding round. Internal stakeholders and external vendors appreciate this rule as practical and helpful.

After several years of working with this price-performance strategy, our practical experience has been very positive. We have managed to satisfy internal customers' expectations, to be a reliable and transparent partner for our vendors, to significantly improve service levels, and keep prices on a market minimum. It is a clear, fair, and effective procedure for all parties.

For the first time, service expectations are defined in detail. We have a regional standard specification that is fully transparent. Communication about service level contributions, questionnaire scores, and service factors between the lead buyer team and vendors is open and honest. That has improved the atmosphere for cooperation and has reduced unpleasant discussions about service casualties and penalties. Instead, there are more general discussions about customer expectations and vendor capabilities.

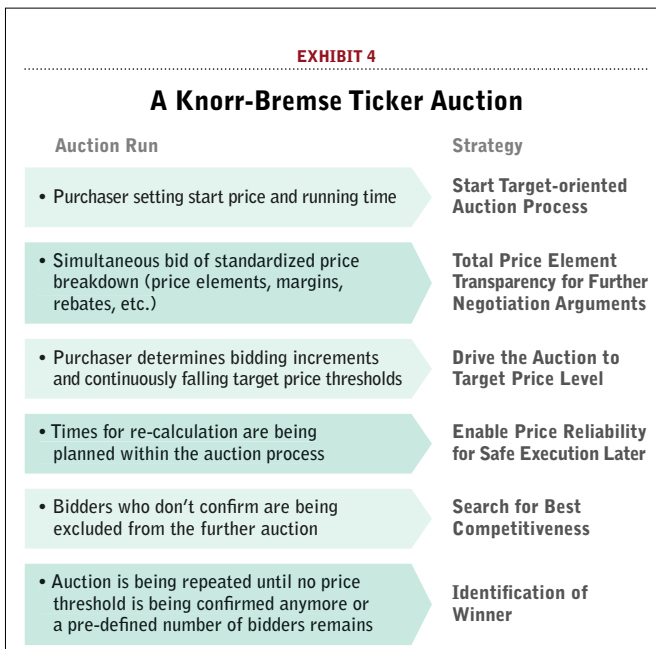
More importantly, vendors have a motivation to reduce the cost of their service deficiencies; they are proactively working on improving their service factor



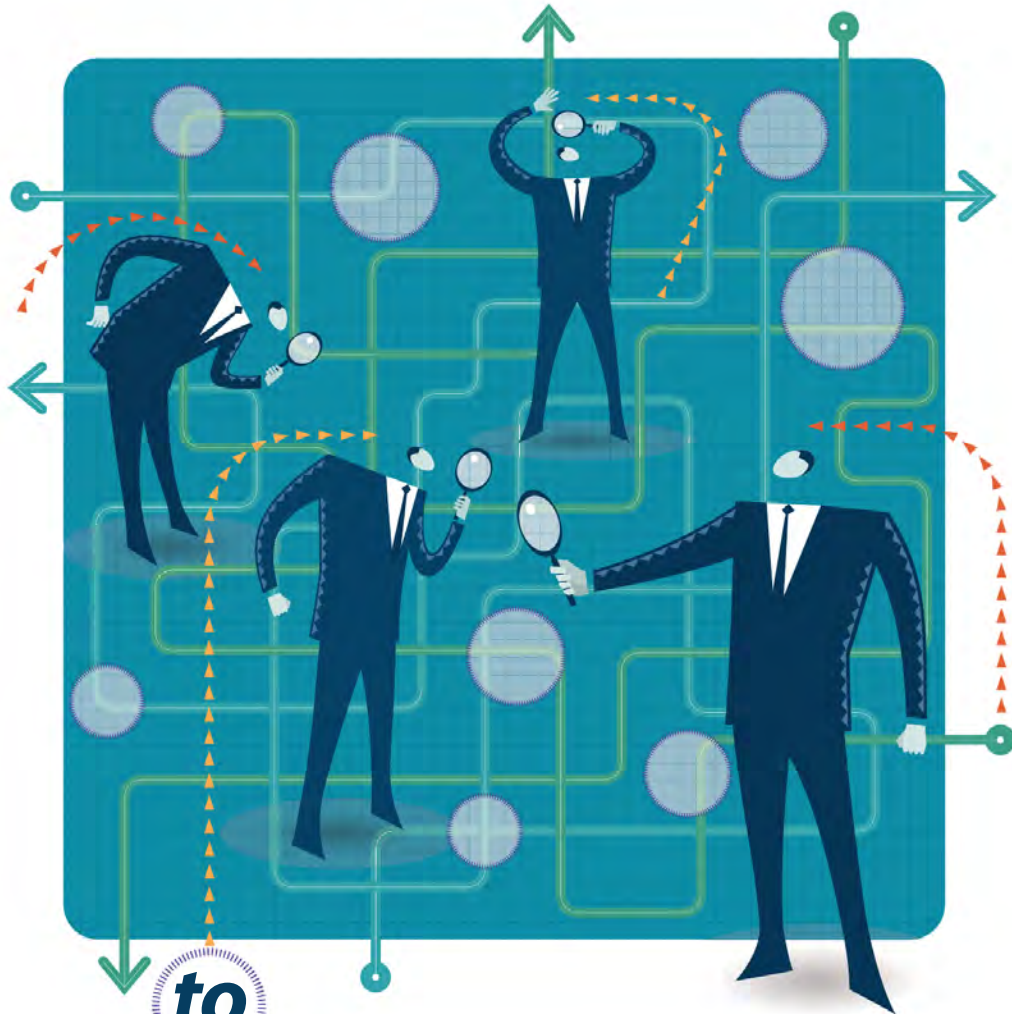
scores in order to raise their chances of winning business even if their bid is a little higher than the competition because the overall cost of doing business with them is lower due to superior service. Internally, the operations departments no longer blame our lead buyer teams for buying bad service to save money.

Last—and perhaps most important—this initiative is aligned with our efforts to strive for continuous improvements in our operations and to develop and improve the capabilities of our vendors' organizations. In this way, we and our freight forwarders are "pulling on the same rope." The feedback we receive from our internal operating departments influences the service factor we apply to logistics providers for the next round of e-bidding. Thus, the operating departments—and Knorr-Bremse as a shipper—have turned the traditional relationship between shipper and logistics provider on its head: Instead of operating from a weak position, it has allowed us to gain leverage with our service providers. It may still be difficult to influence costs, but service deficiencies can now be punished with fewer opportunities to win business. Ineffective—and unpleasant—penalty clauses are no longer necessary. Instead, we now have a powerful tool that is fully transparent and accepted by all participants. ∞∞

The author expresses his gratitude to George Yu and Maggie Wu from the lead buyer team located in Suzhou/Jiangsu, China for their substantial contributions to the development of this program.



Executive Guide



to

Supply Chain Resources



Transportation/ Logistics Services




The following is a representative sample; it is not intended to be an exhaustive listing of all the companies in this category.



AIRFREIGHT SERVICES



Company Name	Website	Company Name	Website
		Damco	www.damco.com
SEKO Logistics 1100 N Arlington Heights Rd Suite 600 Itasca, Illinois 60143 1-630-919-4966 Email: marketing@sekologistics.com Services: Air, Ocean, Ground, Final Mile, Threshold, White Glove, Customs Brokerage, Warehousing, TMS, WMS, PO Management Description: SEKO provides complete Supply Chain Solutions, specializing in transportation, logistics, forwarding and warehousing. We also lead the industry with innovative and customizable IT solutions, which provide a seamless flow of information and give our growing customer base true supply chain visibility. With over 120 offices in 40 countries worldwide, our unique shareholder management model enables you to benefit from Global implementation experience and expertise across all industry sectors, coupled with vital in-country knowledge and service at the local level.		www.sekologistics.com	973-514-5126 www.dhl-usa.com 800-225-5345 www.evaair.com 718-995-5220 www.fedex.com 800-463-3339 www.jalcargo.com 718-656-9801 www.kweusa.com 800-275-4045 www.khcargo.com 800-486-3780 www.klmcargo.com 800-556-9000 cargo.koreanair.com 866-782-2746 www.kn-portal.com 201-413-5500 www.lufthansa-cargo.de 800-542-2746 www.laf.lynden.com 800-926-5703 www.modetransportation.com 972-447-0075 www.nippon-cargo.com 718-632-6500 www.cargo.nwa.com 800-692-2746
Air Canada Cargo	www.aircanada.com/cargo/en/		
800-688-2274			
Alaska Airlines	www.alaskaair.com		
800-225-2752			
American Airlines Cargo	www.aacargo.com		
817-355-6800			
Associated Global Systems	www.agsystems.com		
516-627-8910			
BAX Global Inc.	www.baxworld.com		
714-442-4500			
Cargolux Airlines International S.A.	www.cargolux.com		
561-988-1868			
Cathay Pacific Cargo	www.cathaypacificcargo.com		
800-628-6960			
Continental Airlines Cargo	www.cocargo.com		
800-421-2456			

MOTOR CARRIERS


EXECUTIVE GUIDE TO SUPPLY CHAIN RESOURCES

Company Name	Website	Company Name	Website
Panalpina Inc. 718-310-1000	www.panalpina.com	TNT Express 800-558-5555	www.tnt.com
SATO America 704-644-1650	www.satoamerica.com	United Cargo 800-822-2746	www.unitedcargo.com
Singapore Airlines Cargo 718-656-1010	www.siacargo.com	United States Postal Service 800-275-8777	www.usps.com
Southwest Airlines Cargo 800-533-1222	www.swacargo.com	UPS Air Cargo 800-535-2345	www.ups.com
Team Worldwide 800-832-6247	www.teamair.com		



MOTOR CARRIERS



A. Duie Pyle, Inc. 610-696-5800	www.aduiepile.com	Jevic Transportation, Inc. 888-465-3842	www.jevic.com
AAA Cooper Transportation 334-793-2284	www.aaacooper.com	Kane is Able, Inc. 570-343-5263	www.kaneisable.com
ABF Freight System, Inc. 479-785-8880	www.abfs.com		
Anderson Trucking Services, Inc. 320-225-7400	www.atsinc.com		
Averitt Express 800-283-7488	www.averittexpress.com		
Con-way Freight 734-994-6600	www.con-way.com		
CRST International, Inc. 319-396-4000	www.crst.com		
Estes Express Lines 804-353-1900	www.gi-trucking.com		
Express America Trucking 815-239-1652	www.expressamericatrucking.com		
FedEx Freight 866-393-4585	www.fedex.com		
Heartland Express Inc. 319-545-2728	www.heartlandexpress.com		
Holland 800-456-6322	www.hollandregional.com		
J.B. Hunt Transport Services, Inc. 877-452-4674	www.jbhunt.com		
			
		Landstar System, Inc. 13410 Sutton Park Dr. S. 877-696-4507 Email: Solutions@landstar.com Services: Landstar is a worldwide provider of integrated transportation management solutions delivering safe, customized transportation and logistics services including: truckload, LTL, heavy haul/specialized, rail intermodal, expedited, air and ocean freight. Customers have access to 40,000+ truck capacity providers and an array of equipment, no one in the industry can match. Description: Safe, reliable transportation logistics services and integrated transportation management solutions from a single point of contact with the resources to handle any event – planned or unplanned. With more than 1,100 agents, 9,000 leased owner-operators, 14,000 trailers and 38,000 other available capacity providers, we have a solution to your transportation challenge.	www.landstar.com
		Lily Dedicated Logistics Services 781-449-8811	www.lily.com
		Lynden Transport 206-575-9575	www.lynden.com
		NEMF 908-965-0100	www.nemf.com

OCEAN CARRIERS

EXECUTIVE GUIDE TO SUPPLY CHAIN RESOURCES

Company Name	Website
New Penn 800-285-5000	www.newpenn.com
NFI 866-219-7450	www.nfiindustries.com
Old Dominion FreightLine, Inc. 336-889-5000	www.odfl.com
Pacer Transport 972-224-8121	www.pacertrans.com
Pitt Ohio Express 800-366-7488	www.pittohio.com
Reddaway 888-420-8960	www.reddawayregional.com
Roadway 800-468-5739	www.roadway.com
Ruan Transportation 866-782-6669	www.ruan.com

Saia www.saiacorp.com
 11465 Johns Creek Parkway
 Suite 400
www.saiacorp.com
 1-800-765-7242
 Toll Free: 1-800-765-7242

Company Name	Website
Services: Offers customers a wide range of less-than-truckload, non-asset truckload, and logistic services. Saia operates 147 terminals in 34 states and is home to the industry-exclusive Customer Service Indicators and Xtreme Guarantee. Saia LTL Freight has been recognized by the American Trucking Associations Safety Management Council for its outstanding safety record.	
Schneider National, Inc. 800-558-6767	www.schneider.com
Southeastern Freight Lines 800-637-7335	www.sefl.com
UPS Freight 800-333-7400	www.upsfreight.com
Velocity Express 888-839-7669	www.velocityexp.com
Werner Enterprises, Inc. 402-895-6640	www.werner.com
YRC 800-610-6500	www.yrc.com
YRC Glen Moore 800-848-9695	www.yrcglenmoore.com



OCEAN CARRIERS



APL 510-272-8000	www.apl.com
Atlantic Container Line 908-518-5300	www.aclcargo.com
ATS International Services, Inc. 320-255-7400	www.atsisi.com
Catapult International 913-232-2389	www.gocatapult.com
China Shipping North America 201-505-6900	www.chinashippingna.com
CMA CGM 757-961-2100	www.cma-cgm.com
COSCO Container Lines Americas, Inc. 201-422-0500	www.cosco-usa.com

Crowley Maritime Corporation 904-727-2200	www.crowley.com
Damco 973-514-5126	www.damco.com
Evergreen AmericaLine 201-761-3000	www.evergreen-marine.com
FESCO Agencies North America 206-583-0860	www.fesco-na.com
Great White Fleet US-Ltd. 888-724-5493	www.greatwhitefleet.com
Hanjin Shipping 201-291-4600	www.hanjin.com
Hapag-Lloyd America-Inc. 877-523-8300	www.hapag-lloyd.com

OCEAN CARRIERS

EXECUTIVE GUIDE TO SUPPLY CHAIN RESOURCES

Company Name	Website
Horizon Lines 877-678-7447	www.horizon-lines.com
Hyundai Merchant Marine 972-501-1100	www.hmm21.com
Italia Marittima S.p.A. 201-761-3000	www.italiamarittima.com
K Line America, Inc. 804-560-3600	www.kline.com
Kuehne + Nagel, Inc. 201-413-5500	www.kn-portal.com
Maersk Inc. 973-514-5000	www.maerskline.com
Matson Navigation Company 510-628-4000	www.matson.com
Mediterranean Shipping Company USA-Inc. 212-764-4800	www.msccva.com
Mode Transportation 972-447-0075	www.modetransportation.com
MOL America-Inc. 925-688-2600	www.molpower.com
NYK Line North America-Inc. 888-695-7447	www.nyk.com
OOCL USA-Inc. 925-358-6625	www.oocl.com/eng



SEKO Logistics

1100 N Arlington Heights Rd
Suite 600

www.sekologistics.com

1-630-919-4966

Email: marketing@sekologistics.com

Services: Air, Ocean, Ground, Final Mile, Threshold, White Glove, Customs Brokerage, Warehousing, TMS, WMS, PO Management

Description: SEKO provides complete Supply Chain Solutions, specializing in transportation, logistics, forwarding and warehousing. We also lead the industry with innovative and customizable IT solutions, which provide a seamless flow of information and give our growing customer base true

Company Name	Website
supply chain visibility. With over 120 offices in 40 countries worldwide, our unique shareholder management model enables you to benefit from Global implementation experience and expertise across all industry sectors, coupled with vital in-country knowledge and service at the local level.	



Team Worldwide

www.teamww.com

639 W. Broadway

Toll Free: 800-527-1168

903-342-3516

Fax: 903-342-3764

Email: info@teamww.com

Services: With over 40 U.S. offices U.S., and 170 international members of TIGA® (Team International Global Alliance), Team Worldwide provides global transportation and logistics services organized under the operating companies of: • Team Air Express, Inc. • Team Transportation, Inc. • Team Ocean Services, Inc. • Team Customs Brokerage, Inc.

Description: Established in 1979, Team Worldwide provides global logistics services by air, land or sea with over 40 U.S. offices and 170 international partners, providing: Domestic Freight Forwarding at all service levels, Charters, Local PU&D, High Tech White Glove & Home Delivery, International Air/Ocean Freight Forwarding, L/C Services, Carnets, Customs Brokerage, Consulting and Management, EDI Warehousing & Distribution, TMS, Assembly & Distribution, Repacking, Kitting, Relabeling Pick & Pack, WMS Capabilities, Climate Control Shipping, Trade Show Logistics, Product Fulfillment, Project Cargo, Medical & Technical Equipment Programs, AOG Services, Government & Defense, Sports Logistics.

Totem Ocean Trailer Express, Inc. www.totemocean.com
800-426-0074

Wallenius Wilhelm Logistics www.2wglobal.
201-307-1300

Wan Hai Lines America-Ltd. www.wanhaiusa.com
602-567-9100

Waterman Steamship Corp. www.waterman-steamship.com
251-243-9120

Yang Ming America-Corp. www.yml.com.tw
201-222-8899

ZIM Integrated Shipping Services www.zim.co.il
866-744-7046

RAIL/INTERMODAL SERVICES

EXECUTIVE GUIDE TO SUPPLY CHAIN RESOURCES



RAIL/INTERMODAL SERVICES



Company Name	Website	Company Name	Website
Alliance Shippers, Inc. 201-227-0400	www.alliance.com	Kansas City Southern 816-983-1303	www.kcsouthern.com
American Fast Freight 800-642-6664	www.americanfast.com	Landstar System, Inc. 800-872-9400	www.landstar.com
Anderson Trucking Services, Inc. 320-255-7400	www.atsinc.com	Mode Transportation 972-447-0075	www.modetransportation.com
ATS International Services, Inc. 320-255-7400	www.atsinc.com	Norfolk Southern Corporation 800-635-5768	www.nscorp.com
BNSF Railway 800-795-2673	www.bnsf.com	Pacer Stacktrain 925-887-1400	www.pacerstack.com
Canadian Pacific Railway 403-319-7000	www.cpr.ca	Port Corpus Christi 361-882-5633	www.portofcorpuschristi.com
CSX Intermodal 800-288-8620	www.csxi.com	Schneider National, Inc. 800-558-6767	www.scneider.com
Dart Intermodal, Inc. 800-366-9000	www.dartRail/Intermodal Services.com	Triple Crown Services Company 260-416-3600	www.triplecrownsvc.com
Hub Group, Inc. 630-271-3600	www.hubgroup.com	Twin Modal, Inc. 651-697-8800	www.twinmodal.com



THIRD-PARTY LOGISTICS SERVICES



3PD, Inc. 866-373-7874	www.3pd.com	AIT Worldwide Logistics, Inc. 630-766-8300	www.aitworldwide.com
A. N. Deringer, Inc. 802-524-8110	www.anderinger.com	Alliance Shippers, Inc. 201-227-0400	www.alliance.com
a2b Fulfillment, Inc 150 Stewart Parkway 866-843-3827 Fax: 706-454	www.a2bf.com	Anderson Trucking Services, Inc. 320-255-7400	www.atsinc.com
Services: Deliver the exceptional customer experience. a2b helps companies succeed through integrated Order Fulfillment, Customer Care, and Value-Adding Business Solutions. We believe in real-time processing, same-day fulfillment, knowledgeable customer care and fast returns processing, all supported through advanced Order Management and Logistics technology. Contact us to start a conversation today.		APL Logistics 16220 N. SCOTTSDALE RD Suite 400 602-586-4800 Toll Free: 800-889-0262 Email: global_marketing@apllogistics.com	www.apllogistics.com
Ability One 800-999-5963	www.abilityone.org	Services: APL Logistics is the go-to global supply chain specialist for companies in the Automotive, Consumer, Industrials and Retail sectors. Our worldwide network covers all major markets and is backed by a multinational workforce of approximately 6,000 professionals. For more information go to: www.apllogistics.com	

THIRD-PARTY LOGISTICS SERVICES


EXECUTIVE GUIDE TO SUPPLY CHAIN RESOURCES

Company Name	Website
Associated Global Systems 800-645-8300	www.agsystems.com
ATC Logistics & Electronics 800-466-4202	www.atcle.com
Barrett Distribution Centers 508-553-8800	www.barrettdistribution.com
BNSF Logistics 1600 Lakeside Pkwy Suite 100 855-481-9658 Email: contactus@bnsflogistics.com Services: BNSF Logistics is an industry-leading transportation intermediary, committed to providing value to each of our customers through professional acumen, entrepreneurial drive, and individual commitment. Our vision is to establish BNSF Logistics as the leader in providing creative logistics solutions that consistently exceed our customers' expectations. We handle everything from ultra-complex, multi-modal freight movement around the globe to simple, day-to-day transportation freight solutions across North America. Our expertise spans across an array of modes including truckload, project cargo, ocean, rail, air, LTL, and intermodal. BNSF Logistics provides a blend of professional expertise with logistics technology designed to maximize customer value.	www.bnsflogistics.com
C. H. Robinson Worldwide, Inc. 952-937-8500	www.chrobinson.com
Cardinal Logistics Management 704-786-6125	www.cardlog.com
Cardinal Logistics Management 704-786-6125	www.catlogistics.com
CEVA Logistics 904-928-1400	www.cevalogistics.com
ChemLogix LLC 215-461-3805	www.chemlogix.com
Con-Way Multimodal 800-763-2222	www.con-way.com/multimodal
Crowley Logistics Services 305-463-4800	www.crowley.com
CRST Logistics 888-204-9607	www.crstlogistics.com
CTSI-Global 5100 Poplar Avenue 15th Floor 901-766-1500 Email: solutions@ctsi-global.com Services: CTSI-Global provides valuable supply chain management expertise and technology. CTSI-Global helps shippers and 3PL's manage and control all aspects of their supply	www.ctsi-global.com

Company Name	Website
chains - physical, informational and financial. CTSI-Global provides solutions (TMS, Business Intelligence) and services (Freight Audit & Payment, Global Consulting) that give clients improved efficiencies, processes and savings.	
Damco 973-514-5126	www.damco.com
DB Schenker 800-225-5229	www.dbschenkerusa.com
Delta Logistics 800-240-2654	www.deltalogistics.com
DGX - DEPENDABLE GLOBAL EXPRESS, INC. 19201 Susana Rd. 888-488-4888 Toll Free: 310-669-8888 Fax: 310-868-5181 Email: cammie.laster@dgxglobal.com Services: DGX - Dependable Global Express, an international freight forwarder, offering transportation solutions to Australia, China, Central America, Guam, Hawaii, Hong Kong, Japan, Latin America, Malaysia, New Zealand, Pacific Rim, Singapore, South America, South Pacific, Vietnam, via our global cargo network. We are the supply chain partner you can depend on!	www.dgxglobal.com
DHL Logistics Solutions 800-637-5502	www.dhl-usa.com
DHX - DEPENDABLE HAWAIIAN EXPRESS, INC. 19201 Susana Rd. 310-537-2000 Toll Free: 800-488-4888 Fax: 310-537-1400 Email: cammie.laster@dhx.com Services: DHX - Dependable Hawaiian Express, a Hawaiian freight forwarder, is proud to offer a wide array of transportation solutions to meet all of your freight shipping needs to Hawaii, Guam, the continental U.S. and around the world via our well-connected global cargo network. We are Dependable. From Start to Finish.	www.dhx.com
DSC Logistics 800-372-1960	www.dsclogistics.com
Exel 614-865-8500	www.exel.com
FedEx Global Supply Chain Services 800-222-7657	www.fedex.com
FedEx Trade Networks 800-249-2953	www.ftn.fedex.com
GENCO 800-677-3110	www.genco.com

THIRD-PARTY LOGISTICS SERVICES

EXECUTIVE GUIDE TO SUPPLY CHAIN RESOURCES

Company Name	Website	Company Name	Website
Ingram Micro Logistics 714-382-4845	www.ingrammicro.com	MIQ Logistics 866-972-9272	www.miq.com
Inmar 855-815-2646	www.inmar.com	Mode Transportation 972-447-0075	www.modetransportation.com
Jacobson Companies 515-265-6171	www.jacobsonco.com	NFI 866-219-7450	www.nfiindustries.com
Kane is Able, Inc. 570-343-5263	www.kaneisable.com	NRS – National Retail Systems, Inc. 201-330-1900	www.nrsonline.com
Kenco Logistics Services 800-758-3289	www.kencogroup.com	NVC Logistics Group 201-767-0911	www.nvclogistics.com
Kuehne + Nagel 201-413-5500	www.kuehne-nagel.com	Orbis Corporation 262-560-5000	www.orbiscorporation.com
		Ozburn-Hessey Logistics 615-401-6400	www.ohlogistics.com
Landstar System, Inc. 13410 Sutton Park Dr. S. www.landstar.com 877-696-4507 Email: Solutions@landstar.com	www.landstar.com	Penske Logistics 610-775-6291	www.penskelogistics.com
Services: Landstar is a worldwide provider of integrated transportation management solutions delivering safe, customized transportation and logistics services including: truckload, LTL, heavy haul/specialized, rail intermodal, expedited, air and ocean freight. Customers have access to 40,000+ truck capacity providers and an array of equipment, no one in the industry can match.		PLS Logistics Services 724-814-5100	www.plslogistics.com
Description: Safe, reliable transportation logistics services and integrated transportation management solutions from a single point of contact with the resources to handle any event – planned or unplanned. With more than 1,100 agents, 9,000 leased owner-operators, 14,000 trailers and 38,000 other available capacity providers, we have a solution to your transportation challenge.		Port Logistics Group 973-249-1230	www.portlogisticsgroup.com
LMS Logistics 314-692-8886	www.lmslogistics.com	Prologis 303-567-5000	www.prologis.com
Logistics Insight Corporation (LINC) 888-334-5462	www.4linc.com	Quiet Logistics 877-887-8438	www.quietlogistics.com
Lynden Logistics 866-459-6336	www.llog.lynden.com	Ruan 866-782-6669	www.ruan.com
Melton Logistics, LLC 918-234-4414	www.meltonlogistics.com	Ryder Supply Chain Solutions 888-887-9337	www.ryderscs.com
Menlo Worldwide Logistics 248-648-6110	www.menloworldwide.com	Ryder System, Inc. 305-500-3726	www.ryder.com
		Saddle Creek Logistics Services 863-665-0966	www.scllogistics.com
		Saia 11465 Johns Creek Parkway Suite 400 1-800-765-7242 Toll Free: 1-800-765-7242	www.saiacorp.com
		Services: Offers customers a wide range of less-than-truckload, non-asset truckload, and logistic services. Saia operates 147 terminals in 34 states and is home to the industry-exclusive Customer Service Indicators and Xtreme Guarantee. Saia LTL Freight has been recognized by the American Trucking Associations Safety Management Council for its outstanding safety record.	

THIRD-PARTY LOGISTICS SERVICES

EXECUTIVE GUIDE TO SUPPLY CHAIN RESOURCES

Company Name	Website
Schneider Logistics, Inc. 866-875-9046	www.schneiderlogistics.com
Suddath Global Logistics 904-858-1234	www.suddath.com



Team Worldwide **www.teamww.com**

639 W. Broadway
903-342-3516
Toll Free: 800-527-1168
Fax: 903-342-3764
Email: info@teamww.com

Services: With over 40 U.S. offices U.S., and 170 international members of TIGA® (Team International Global Alliance), Team Worldwide provides global transportation and logistics services organized under the operating companies of:

- Team Air Express, Inc. • Team Transportation, Inc. • Team Ocean Services, Inc. • Team Customs Brokerage, Inc.

Description: Established in 1979, Team Worldwide provides global logistics services by air, land or sea with over 40 U.S. offices and 170 international partners, providing: Domestic Freight Forwarding at all service levels, Charters, Local PU&D, High Tech White Glove & Home Delivery, International Air/Ocean Freight Forwarding, L/C Services, Carnets, Customs Brokerage, Consulting and Management, EDI Warehousing & Distribution, TMS, Assembly & Distribution, Repacking, Kitting, Relabeling Pick & Pack, WMS Capabilities, Climate Control Shipping, Trade Show Logistics, Product Fulfillment, Project Cargo, Medical & Technical Equipment Programs, AOG Services, Government & Defense, Sports Logistics.

TMSi 603-373-7233	www.tmsilog.com
TransGroup Worldwide Logistics 800-444-0294	www.transgroup.com


Company Name	Website
Transplace 479-770-7391	www.transplace.com
Transportation Insight 828-485-5000	www.transportationinsight.com
TranzAct Technologies, Inc. 630-833-0890	www.tranzact.com
Universal Truckload Services, Inc. 586-920-0100	www.goutsi.com
UPS Supply Chain Solutions 913-693-6151	www.ups-scs.com
UTI Integrated Logistics 803-771-6785	www.utiintegratedlogistics.com
UTi Worldwide 562-552-9400	www.go2uti.com
Versant Supply Chain 901-542-0610	www.versantsc.com
Werner Global Logistics 402-895-6640	www.werner.com
WSI Warehouse Specialists, Inc. 920-831-3700	www.wsinc.com
Zoyto 866-469-6986	www.zoyto.com



Supply Chain Software and Technology



The following is a representative sample; it is not intended to be an exhaustive listing of all the companies in this category.

Company Name	Website	Company Name	Website
4SIGT Supply Chain Group 201-940-7311	www.go4sight.com	system and BacTracs for Supply Chain Reverse Logistics requirements are available.	
Acuitive Solutions 704-847-4997	www.acuitivesolutions.com	Description: Andlor staff have partnered with the Logistics Industry for over thirty years. The software is a fully integrated 3PL WMS including EDI, RF/RFID, Barcoding, Document and Report Archiving, Electronic Signature Capture and Courier Interface. E-Track, the WMS Internet front-end provides access throughout the Supply Chain. Clients can enter orders and appointments, access the status of receipts, shipments, invoices, appointments and labor productivity. The Andlor Reporting Tool (ART) system provides output in multiple formats. An integrated YMS system ties to the WMS system. Andlor offers BacTracs for 3PL Supply Chain Reverse Logistics. Excellent functionality and support are Andlor trademarks.	
Akoya 224-612-5110	www.akoyainc.com		
ALK Technologies - PC*MILER 609-683-0220	www.pcmiller.com		
Amber Road, Inc. One Meadowlands Plaza 1-201-935-8588 Fax: 1-201-935-5187 Email: Solutions@AmberRoad.com	www.AmberRoad.com		
Services: As a leading provider of global trade management solutions, Amber Road automates the global supply chain across sourcing, logistics, cross-border trade, and regulatory compliance activities. This includes collaborating with suppliers; executing import/export compliance checks and generating shipping documentation; booking carriers and tracking goods; and minimizing duties through FTAs and FTZs.			
Amitive 650-332-2100	www.amitive.com	Apriso Corporation 562-951-8000	www.apriso.com
Amosoft EDI Services 800-761-4268	www.amosoft.com	ASAP Automation LLC 502-266-9999	www.asapauto.com
		BearCom 800-527-1670	www.bearcom.com
		Biznet Solutions Ltd +44 2890223224	www.biznetpm.com
		C3 Solutions 514-315-3139	www.c3solutions.com
		Cadre Technologies, Inc. 303-217-7037	www.cadrettech.com
		Catapult International 913-232-2389	www.gocatapult.com
		Celsis 312-476-1282	www.celsis.com
		Continental Wireless 972-926-7443	www.continentalrfid.com
 Logistics Systems Inc. - Andlor Group			
Andlor Logistics Systems Suite 210-850 West Hastings Street Canada 604-687-1130 Fax: 604-687-1189 Email: Sales@andlor.com	www.Andlor.Com		
Services: Andlor staff have partnered with the Logistics Industry for over thirty years providing a fully integrated 3PL WMS. E-Track provides Internet access for the Supply Chain including orders, receipts, shipments, invoices, inventories, appointments and labor productively. An integrated YMS			

SUPPLY CHAIN SOFTWARE AND TECHNOLOGY
EXECUTIVE GUIDE TO SUPPLY CHAIN RESOURCES

Company Name **Website**



CT Logistics **www.ctlogistics.com**

12487 Plaza Drive
216-267-2000
Fax: 216-267-5945

Email: sales@ctlogistics.com

Services: Since 1923, CT has provided global freight audit/payment for all modes/currencies. Partner with CT to design and deliver customized supply chain solutions. CT's FreightRater™ software is the industry's first choice for freight analysis and TMS solutions. CT provides BI for benchmarking/trending with dashboards. CT has SOCII and ISO 9001:2008 certifications.

Description: Since 1923, CT Logistics has been the preeminent provider of global freight audit and payment services for all modes of transportation. All size firms, including Fortune 100, partner with CT to design and deliver supply chain solutions. CT's FreightRater™ software, the industry's first choice for professional freight analysis and TMS solutions, calculates freight in all modes and currencies to support your international metrics. CT provides complete supply chain visibility using Business Intelligence for benchmarking and trending with dashboards for reports. CT has SOCII and ISO 9001:2008 certifications. CT's professionals are skilled in leveraging expertise and technology to maximize your ROI.

CTSI-Global www.ctsi-global.com
888-836-5135

Damco www.damco.com
973-514-5126



Digital Lumens **www.digitallumens.com**

374 Congress Street
617-723-1200

Email: info@digitallumens.com

Services: The Digital Lumens LED-based Intelligent Lighting System is proven in some of the world's leading warehouses, distribution centers, and manufacturing facilities to reduce lighting energy costs up to 90% while improving light levels. Smart high bay LED lights, all with integrated occupancy and daylight sensors, are wirelessly networked and centrally managed to deliver light when and where needed. LightRules® lighting management software provides lighting system reports, and the ability to fine tune lighting settings anytime, anywhere.

Description: Digital Lumens is a global supplier of enterprise-scale intelligent LED lighting systems for leading commercial and industrial customers, delivering 90% energy savings and granular building intelligence. With over 200

Company Name **Website**

million square feet of deployments worldwide, Digital Lumens brings the tangible benefits of Internet of Things to a variety of environments.



DMLogic LLC **www.dmlogicllc.com**

661 Andersen Drive
Foster Plaza 7
412-458-4010

Email: kwoodsum@dmlogicllc.com

Services: Do you wish your WMS did more? You can with STEPLogic. STEPLogic is a software development tool that automates development tasks, replacing them with configuration steps. The product provides the user with the tools to build decision tree navigation so users can enhance their current WMS to meet their needs.

Description: DMLogic helps clients reach the highest levels of productivity and efficiency within the four walls of the warehouse from design to implementation to support. DMLogic creates a flawless flow of identification, sorting, tracking, packing, shipping and validating. We have developed the software tools that will enable you to perform better. Bringing together our unmatched experience, we have devised creative solutions that provide greater visibility and autonomy to the operation. We work with the world's leading pharmaceutical manufacturers to provide rigorous, unparalleled validation of their inventory systems. We manage the warehousing of apparel, auto parts, electronics, food and beverages, and more.

E2open www.e2open.com
650-381-3700

eCustoms www.ecustoms.com
716-881-2590

Elemica www.elemica.com
610-786-1200

Epicor Software www.epicor.com
215-493-8900

FORTE www.forte-industries.com
513-398-2800

SUPPLY CHAIN SOFTWARE AND TECHNOLOGY

EXECUTIVE GUIDE TO SUPPLY CHAIN RESOURCES

Company Name	Website
FREIGHTWARE® by InFreight Logistics Inc. 1-536 Dominion Ave. Canada 905-820-3030 Toll Free: 844-378-9273 Email: salesgroup@infreightlogistics.com Services: FREIGHTWARE® from InFreight Logistics provides web based software solutions to enhance shipping and distribution responsibilities. FREIGHTWARE® transRate is a Freight Rate Management System for U.S., Canadian and Mexican based rating. FREIGHTWARE® transPay provides audit and automated settlement of your carrier's freight invoices. EDI 204 and 210 capabilities are included.	www.infreightlogistics.com
FusionOps 408-524-2222	www.fusionops.com
Genpact +91 9811546542	www.genpact.com
GT Nexus 510-808-2222	www.gtnexus.com
HighJump Software 952-947-4088	www.highjumpsoftware.com
i2 Technologies, Inc. 800-800-3288	www.i2.com
IBM 877-426-3774	www-01.ibm.com/software/commerce/supply-chain-management
IES, Ltd. 201-639-5000	www.ieltd.com
IFS 847-592-0200	www.ifsworld.com
ILOG 408-991-7000	www.ilog.com
InfinityQS 800-772-7978	www.infinityqs.com
Infor 678-319-8000	www.infor.com
Inovis, Inc. 404-467-3000	www.inovis.com
Insight, Inc. 703--366-3061	www.insight-mss.com
Integration Point 704-576-3678	www.integrationpoint.com
Interlink Technologies 419-893-9011	www.thinkinterlink.com

Company Name	Website
Invensys PLC 919-870-4700	www.invensys.com
JDA Software Group, Inc. 480-308-3000	www.jda.com
Jump Technologies 888-373-7226	www.jumptech.com
Kinaxis 613-592-5780	www.kinaxis.com
Kiva Systems Inc 781-221-4640	www.kivasystems.com
Knapp Logistics Automation 678-388-2880	www.knapp.com/us
Kronos 800-225-1851	www.kronos.com
Landstar System, Inc. 877-696-4507	www.landstar.com
LeanLogistics 616-738-6400	www.leanlogistics.com



Logility **www.logility.com**
 470 E Paces Ferry Road NE
 800-762-5206
 Email: info@logility.com
Services: Logility Voyager Solutions is a complete supply chain management and retail optimization solution that features advanced analytics and provides supply chain visibility; demand, inventory and replenishment planning; S&OP; supply and inventory optimization; manufacturing planning and scheduling; retail merchandise planning and allocation; and transportation planning and management.
Description: Logility is a leading provider of collaborative supply chain optimization and advanced retail planning solutions that help medium, large, and Fortune 100 companies realize substantial bottom-line results in record time. Logility Voyager Solutions is a complete supply chain management solution that features advanced analytics and provides supply chain visibility; demand, inventory and replenishment planning; S&OP; supply and inventory optimization; manufacturing planning and scheduling; retail merchandise planning and allocation; and transportation planning and management. Logility customers include Abercrombie & Fitch, Big Lots, Fender Musical Instruments, Parker Hannifin, Verizon Wireless, and VF Corporation.

SUPPLY CHAIN SOFTWARE AND TECHNOLOGY

EXECUTIVE GUIDE TO SUPPLY CHAIN RESOURCES

Company Name	Website
LOG-NET, Inc. 732-758-6800	www.log-net.com
Management Dynamics 201-935-8588	www.managementdynamics.com
Manhattan Associates, Inc. 770-955-7070	www.manh.com



MercuryGate International, Inc. www.mercurygate.com
 200 Regency Forest Drive, #400
 919-469-8057
 Email: sales@mercurygate.com
Services: MercuryGate delivers a cloud-based TMS enabling shippers and service providers to optimize and execute global shipments, allocate costs, and analyze transportation data. Support for multi-leg loads includes TL, LTL, parcel, air, ocean, rail, and intermodal. Door-to-door control tower visibility with analytics ensures reliable information to monitor and control in-transit freight.
Description: MercuryGate offers the industry's only cloud-based, single-platform, omni-modal transportation management system. Companies of all sizes quickly locate capacity, select carriers & rates and significantly reduce their transportation spend. Using any mode of transportation, including parcel, shippers and LSPs optimize 100% of domestic and international shipments. The TMS offers rapid deployment of an easy-to-use and configurable system in any language, currency or unit of measure. Services companies leverage the TMS to support their 3PL, brokerage, or freight forwarding business – or all three! When it comes to the challenges of managing transportation costs, turn to the TMS that delivers.

Microsoft Corporation 888-477-7989	www.microsoft.com
Next Generation Logistics, Inc. 847-963-0007	www.nextgeneration.com

Odyssey Logistics & Technology Corporation www.odysseylogistics.com
 39 Old Ridgebury Rd
 203-448-3900
 Toll Free: 855-412-0199
Services: With operations in North America, Europe and Asia, Odyssey Logistics & Technology Corporation provides comprehensive services in four sectors: intermodal, truck, international, and managed services and consulting. Expertise includes: TL/LTL trucking, containership, rail, air, and bulk including bulk truck, ISO Tank, railcar, tanker, and an innovative transportation management solution, WIN.

Company Name	Website
One Network Enterprises 972-385-8630	www.onenetwork.com
Oracle Corporation 650-506-0024	www.oracle.com
PEAK Technologies, Inc. 800-926-8212	www.peaktech.com
QAD Inc. 805-684-6614	www.qad.com
Qualcomm Inc. 858-587-1121	www.qualcomm.com
Quintiq software 610-964-8111	www.quintiq.com
RedPrairie Corporation 877-733-7724	www.redprairie.com
SAP 866-379-4715	www.sap.com



SEKO Logistics www.sekologistics.com
 1100 N Arlington Heights Rd
 Suite 600
 1630 919 4966
 Email: marketing@sekologistics.com
Services: Air, Ocean, Ground, Final Mile, Threshold, White Glove, Customs Brokerage, Warehousing, TMS, WMS, PO Management
Description: SEKO provides complete Supply Chain Solutions, specializing in transportation, logistics, forwarding and warehousing. We also lead the industry with innovative and customizable IT solutions, which provide a seamless flow of information and give our growing customer base true supply chain visibility. With over 120 offices in 40 countries worldwide, our unique shareholder management model enables you to benefit from Global implementation experience and expertise across all industry sectors, coupled with vital in-country knowledge and service at the local level.

Software AG 800-823-2212	www.softwareag.com
Sterling Commerce 614-793-4041	www.sterlingcommerce.com
SupplyOn 248-758-2300	www.supplyon.com
Synchron 678-638-6275	http://www.synchron.com

SUPPLY CHAIN SOFTWARE AND TECHNOLOGY
EXECUTIVE GUIDE TO SUPPLY CHAIN RESOURCES

Company Name	Website	Company Name	Website
SYSPRO 714-437-1000	www.syspro.com	TZA 847-540-6543	www.tza.com
TCLogic 317-464-5152	www.tclogic.com	Vitech Business Group, Inc. 360-647-1622	www.vitechgroup.com
Technologix Decision Sciences Inc. 905-889-2178	www.technologix.ca	XpressRate 855-517-3777	www.xpressrate.com
TECSYS Inc. 514-866-0001	www.tecsys.com		
The Descartes Systems Group Inc. 519-746-8110	www.descartes.com		
TraceLink Inc 781-938-6500	www.tracelink.com		

TranzAct Technologies, Inc. www.tranzact.com

360 W. Butterfield Rd., Suite 400
630-833-0890

Email: solutions@tranzact.com

Services: TranzAct Technologies is the leading provider of Transportation Spend Management Solutions and Software, with over 30 years of experience. TranzAct delivers state-of-the-art logistics management capabilities, enabling shippers to plan and control expenditures. Our solutions provide companies with freight audit and payment, rating, reporting, TMS applications, sourcing, diagnostics, and process improvements.



Sourcing and Procurement Solutions



The following is a representative sample; it is not intended to be an exhaustive listing of all the companies in this category.

Company Name	Website	Company Name	Website
1st Source Products, Inc. 812-288-7466	www.1stsourceproducts.com	FIDELITONE 1260 Karl Court 847-487-3300 Toll Free: 800-475-0917 Email: zrogers@fidelitone.com Services: FIDELITONE, a supply chain management firm, helps you earn your customers' loyalty through specialized services in last mile delivery, inbound materials management, order fulfillment, service parts management and transportation. We manage resources, create right-fit solutions and optimize supply chain processes to advance your business performance and profitability.	www.FIDELITONE.com
A. T. Kearney Procurement Solutions 312-223-6400	www.atkearneyprocurement.com	Fieldglass 312-279-8700	www.fieldglass.com
Ariba 650-390-1000	www.ariba.com	Genpact +91 9811546542	www.genpact.com
Austin-Tetra, Inc. 972-756-8100	www.austintetra.com	Greybeard Advisors 412-874-8410	www.greybeardadvisors.com
BasWare 203-487-7900	www.basware.com	Hertzler Systems Inc. 574-533-0571	www.hertzler.com
Battery Filling Systems of the Americas 336-714-0448	www.batteryfilling.com	ICG Commerce 877-935-4242	www.icgcommerce.com
Beroe, Inc. 919-342-4569	www.beroe-inc.com	IQNavigator 303-563-1500	www.iqnavigator.com
Catapult International 913-232-2389	www.gocatapult.com	JPMorgan Xign Corporation 212-270-6000	www.jpmorganchase.com
CombineNet, Inc. 412-471-8200	www.combine.net.com	MCS Management Services 215-405-8100	www.mcsmanagement.com
Corporate United 440-895-0938	www.corporateunited.com	Mode Transportation 972-447-0075	www.modetransportation.com
Emptoris, Inc. 781-993-9212	www.emptoris.com	Motion Industries, Inc. 205-951-1154	www.motionindustries.com
Enporion, Inc. 866-436-7674	www.enporion.com		
Epiq Technologies 858-467-9961	www.epiqtech.com		

SOURCING AND PROCUREMENT SOLUTIONS

EXECUTIVE GUIDE TO SUPPLY CHAIN RESOURCES

Company Name	Website
Odyssey Logistics & Technology Corporation 39 Old Ridgebury Rd 203-448-3900 Toll Free: 855-412-0199 Services: With operations in North America, Europe and Asia, Odyssey Logistics & Technology Corporation provides comprehensive services in four sectors: intermodal, truck, international, and managed services and consulting. Expertise includes: TL/LTL trucking, containership, rail, air, and bulk including bulk truck, ISO Tank, railcar, tanker, and an innovative transportation management solution, WIN.	www.odysseylogistics.com
Perfect Commerce 757-766-8211	www.perfect.com
Procuri, Inc. 404-720-1200	www.procuri.com
Promotional Product Solutions by Image Premiums 845.362.6135	www.imagepremiums.com
Puridiom 800-388-1415	www.puridiom.com



SEKO Logistics www.sekologistics.com
 1100 N Arlington Heights Rd
 Suite 600
 1-630-919 4966
Email: marketing@sekologistics.com
Services: Air, Ocean, Ground, Final Mile, Threshold, White Glove, Customs Brokerage, Warehousing, TMS, WMS, PO Management
Description: SEKO provides complete Supply Chain Solutions, specializing in transportation, logistics, forwarding and warehousing. We also lead the industry with innovative and customizable IT solutions, which provide a

Company Name	Website
seamless flow of information and give our growing customer base true supply chain visibility. With over 120 offices in 40 countries worldwide, our unique shareholder management model enables you to benefit from Global implementation experience and expertise across all industry sectors, coupled with vital in-country knowledge and service at the local level.	
SICK, Inc. 952-941-6780	www.sickusa.com
Source One Management Services, LLC 215-902-0200	www.sourceoneinc.com
TradingPartners 312-857-3000	www.tradingpartners.com
Zoyto 713-300-3000	www.zoyto.com
Zycus Inc. 609-799-5664	www.zycus.com



Professional Associations



The following is a representative sample; it is not intended to be an exhaustive listing of all the companies in this category.

Company Name	Website	Company Name	Website
APICS—The Association for Operations Management 800-444-2742	www.apics.org	NITL National Industrial Transportation League 703-524-5011	www.nitl.org/
AST&L 202-580-7270	www.astl.org	SIG Sourcing Interests Group 530- 582-8600	www.sourcinginterests.org
CSCMP Council of Supply Chain Management Professionals 630-645-3491	cscmp.org/	Supply Chain Council 202-962-0440	www.supply-chain.org/
International Society of Logistics 301-459-8446	www.sole.org/	TRB Transportation Research Board 202-334-2000	www.trb.org
IQPC 800-882-8684	www.iqpc.com	WERC Warehousing Education & Research Council 630-990-0001	www.werc.org
ISM Institute for Supply Management 480-752-6276	www.ism.ws/		
MHIA Material Handling Institute of America 704-676-1190	www.mhia.org/		



Consulting and Professional Services



The following is a representative sample; it is not intended to be an exhaustive listing of all the companies in this category.

Company Name	Website	Company Name	Website
A. T. Kearney, Inc. 312-648-0111	www.atkearney.com	Deloitte 212-489-1600	www.deloitte.com
Aberdeen Group 617-723-7890	www.aberdeen.com	Direct Recruiters, Inc. 440-248-3370	www.directrecruiters.com
Accenture 312-693-0161	www.accenture.com	Facility Group 770-437-2700	www.facilitygroup.com
AMR Research 617-542-6600	www.amrresearch.com	Fennimore Solutions 224-484-8926	www.fennimoresolutions.com
ARC Advisory Group 781-471-1000	www.arcweb.com	Forrester Research 617-613-6124	www.forrester.com
BearingPoint 703-747-3000	www.bearingpoint.com	Forte 513-398-2800	www.forteconsultants.com
Booz-Allen 703-902-5000	www.boozallen.com	Gartner 408-468-8101	www.gartner.com
Boston Consulting Group 617-850-3700	www.bcg.com	GCL Group 866-364-4721	www.gclgroup.com
Bristlecone 408-321-3400	www.bcone.com	Greybeard Advisors 412-874-8410	www.greybeardadvisors.com
CapGemini 617-829-7377	www.capgemini.com	Hitachi Consulting 877-664-0010	www.hitachiconsulting.com
Chain Connectors, Inc. 770-432-9952	www.chainconnectors.com	IBM Consulting 800-IBM-7080xBCS	www.ibm.com
Chain Link Research 617-406-9300	www.chainlinkresearch.com	KEOGH Consulting 817-822-1930	www.keogh-consulting.com
Chainalytics 770-433-1566	www.chainalytics.com	Kurt Salmon Associates 404-892-0321	www.kurtsalmon.com
Chicago Consulting 312-346-5080	www.chicago-consulting.com		
CSC Consulting 805-491-3926	www.cscconsulting.com		

CONSULTING AND PROFESSIONAL SERVICES
EXECUTIVE GUIDE TO SUPPLY CHAIN RESOURCES

Company Name	Website
Odyssey Logistics & Technology Corporation 39 Old Ridgebury Rd 203-448-3900 Toll Free: 855-412-0199 Services: With operations in North America, Europe and Asia, Odyssey Logistics & Technology Corporation provides comprehensive services in four sectors: intermodal, truck, international, and managed services and consulting. Expertise includes: TL/LTL trucking, containership, rail, air, and bulk including bulk truck, ISO Tank, railcar, tanker, and an innovative transportation management solution, WIN.	www.odysseylogistics.com
Pragmatek 612-333-3164	www.pragmatek.com
PRTM 651-730-0008	www.prtm.com
R. Michael Donovan & Co., Inc. 508-788-1100	www.rmdonovan.com
Resources Global Associates 800-900-1131	www.resourcesglobal.com
Revere Group 312-873-3400	www.reveregroup.com
Sedlak 216-206-4700	www.jasedlak.com



SEKO Logistics www.sekologistics.com
1100 N Arlington Heights Rd.
Suite 600
1-630-919-4966
Email: marketing@sekologistics.com
Services: Air, Ocean, Ground, Final Mile, Threshold, White Glove, Customs Brokerage, Warehousing, TMS, WMS, PO Management
Description: SEKO provides complete Supply Chain Solutions, specializing in transportation, logistics, forwarding

Company Name	Website
and warehousing. We also lead the industry with innovative and customizable IT solutions, which provide a seamless flow of information and give our growing customer base true supply chain visibility. With over 120 offices in 40 countries worldwide, our unique shareholder management model enables you to benefit from Global implementation experience and expertise across all industry sectors, coupled with vital in-country knowledge and service at the local level.	
St. Onge Company 717-840-8181	www.stonge.com
Staubach Company 800-944-0012	www.staubach.com
Supply Chain Visions 425-985-6396	www.scvisions.com
Tenzing Consulting 724-940-4060	www.tenzingconsulting.com
The OAVCI Group 206.312.9260	www.oavci.com
Tompkins Associates 919-855-5533	www.tompkinsinc.com
Trade Wings, Inc. 603-766-7000	www.tradewings.com
TranSystems 419-469-2279	www.transystems.com
TriFactor Distribution Solutions 863-646-9671	www.trifactor.com
XIO Strategies 571-722-1900	www.xiostrategies.com



Financial Services

The following is a representative sample; it is not intended to be an exhaustive listing of all the companies in this category.

Company Name	Website	Company Name	Website
American Express 800-528-2122	www.americanexpress.com	Meridian Finance Group 310-260-2130	www.meridianfinance.com
Bank of America Corporation 704-386-5681	www.bankofamerica.com	PowerTrack US Bank 800-417-1844	www.usbank.com
Citigroup 800-285-3000	www.citigroup.com	PrimeRevenue 678-904-7100	www.primerevenue.com
CT Logistics 216-267-2000	info.ctlogistics.com	RBS 212-401-3200	www.rbsmarkets.com
Euler Hermes 410-753-0753	www.eulerhermes.com	TradeCard Inc. 212-405-1800	www.tradecard.com
GE Corporate Payment Services 800-554-0581	www.gebusinessmarketplace.com	UPS Capital 800-637-0620	www.capital.ups.com
HSBC Corporate Services 212-525-2563	www.hsbcnet.com	Visa Inc. 800-847-2911	www.visa.com
JPMorgan Chase & Co. 212-270-6000	www.jpmorganchase.com	Wachovia 800-922-4684	www.wachovia.com
MasterCard Worldwide 914-249-2000	www.mastercard.com		



Educational & Professional Development

The following is a representative sample; it is not intended to be an exhaustive listing of all the companies in this category.

Company Name	Website	Company Name	Website
Accenture Supply Chain Academy 703-947-2176	www.supplychainacademy.com	Rutgers Business School 973-353-1234	www.business.rutgers.edu
Arizona State University 480-965-7579	www.wpcarey.asu.edu/exec	Shippensburg University 717-477-1483	http://webpace.ship.edu/business/dept/scm/scmprg.htm
Cranfield University/ School of Management 44-011-1234-758102	www.cranfieldmsc.biz/log	Syracuse University 315-443-3751	www.whitman.syr.edu/scm
DePaul University 312-362-8300	www.depaul.edu University	Texas A&M University 979-845-1616	www.business.tamu.edu
George Institute of Technology 404-385-7306	www.emil.gatech.edu/	The World Academy 908-354-7746	www.theworldacademy.com
Golden Gate University 415-442-6500	www.ggu.edu University	University of Arkansas 479-575-6142	www.waltoncollege.uark.edu
Massachusetts Institute of Technology MIT 617-258-7267	http://ctl.mit.edu/	University of Liverpool 31-0-20-713-0000	www.ohecampus.com
Michigan State University 517-355-8377	www.bus.msu.edu/msc	University of Maryland 301-509-4880	www.rhsmith.umd.edu
Niagara University 716-286-8050	www.niagara.edu/supplychain	University of Michigan 734-763-7804	http://exed.umich.edu
North Carolina State University 919-515-5560	www.mgt.ncsu.edu	University of San Diego 619-260-4600	www.sandiego.edu/scmi
Northeastern University 866-890-0347 x3510	www.cba.neu.edu	University of San Francisco 800-609-4196	www.usanfranonline.com/ism
Northwestern University 847-467-7020	www.kellogg.northwestern.edu/ execed	University of Tennessee 865-974-5001	http://supplychain.utk.edu
Ohio State University 614-292-8808	www.fisher.osu.edu	University of Wisconsin-Madison 608-441-7357	http://exed.wisc.edu/ supplychain
Penn State University 814-865-3435	www.smeal.psu.edu/psep	Walden University 866-492-5336	www.waldenu.edu



Warehouse/DC

The following is a representative sample; it is not intended to be an exhaustive listing of all the companies in this category.

Company Name	Website	Company Name	Website	
4SIGHT Supply Chain Group 201-940-7211	www.go4sight.com	<p>ration steps. The product provides the user with the tools to build decision tree navigation so users can enhance their current WMS to meet their needs.</p> <p>Description: DMLogic helps clients reach the highest levels of productivity and efficiency within the four walls of the warehouse from design to implementation to support. DMLogic creates a flawless flow of identification, sorting, tracking, packing, shipping and validating. We have developed the software tools that will enable you to perform better. Bringing together our unmatched experience, we have devised creative solutions that provide greater visibility and autonomy to the operation. We work with the world's leading pharmaceutical manufacturers to provide rigorous, unparalleled validation of their inventory systems. We manage the warehousing of apparel, auto parts, electronics, food and beverages, and more.</p>		
ADi SmartBOL 732-981-0444	www.smartbol.com/			
ADSI 847-884-1940	www.adsionline.com			
AmbaFlex Inc. 817-800-1634	www.ambaflex.com			
AS/R Systems Inc. 847-955-0980	www.asrsystems.com			
Ashland Conveyor Products 419-281-1235	www.ashlandconveyor.com			
Axmann Conveying Systems 812-284-9285	www.axmann-fs.com/		Datalogic, Inc. +39 051 3147011	www.datalogic.com
Cadre Technologies, Inc. 866-25-CADRE	www.cadrettech.com		Dematic 877-725-7500	www.dematic.com
CLARK Material Handling Company 859-422-6521	www.clarkmhc.com		DENSO ADC 888-693-3676	www.denso-adc.com
Conroll 910-202-4292	www.conroll.com		Digital Lumens 617-723-1200	www.digitallumens.com
Crown Equipment 419-629-2311	www.crown.com			
Cushman 706-798-4311	www.cushman.com			



DMLogic LLC

661 Andersen Drive
Foster Plaza 7
412-458-4010

Email: kwoodsum@dmlogicllc.com

Services: Do you wish your WMS did more? You can with STEPLogic. STEPLogic is a software development tool that automates development tasks, replacing them with configu-

www.dmlogicllc.com



East Coast Storage Equipment

ecseco.com

620 Burtis St
732-451-1808

Toll Free: 888-294-5022

Email: info@ecseco.com

Services: East Coast Storage Equipment is a distributor and systems integrator all all types of material handling systems. We can completely outfit your whole warehouse/distribution for increased efficiency and productivity. We have over 20 years experience designing and installing various racking systems, mezzanine platforms, industrial shelving and conveyor systems. Our services include project management, design & layout, installation, custom fabrication, tear down and warehouse equipment relocation.

Emerson Industrial Automation www.emersonindustrial.com
866-743-4392

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Company Name	Website	Company Name	Website
EnerSys 610-208-1991	www.enersys.com	Interroll Corporations USA 910-520-3382	www.interroll.us
FIDELITONE 1260 Karl Court 847-487-3300 Toll Free: (800) 475-0917 Email: zrogers@fidelitone.com Services: FIDELITONE, a supply chain management firm, helps you earn your customers' loyalty through specialized services in last mile delivery, inbound materials management, order fulfillment, service parts management and transportation. We manage resources, create right-fit solutions and optimize supply chain processes to advance your business performance and profitability.	www.FIDELITONE.com	I0G Products 484-924-9400	www.iogproducts.com
Flexible Material Handling 678-745-3720	www.flexmh.com	Jervis B Webb Company 248-553-1000	www.daifukuwebb.com
FlexLink Systems 610-973-8200	www.flexlink.com	Jungheinrich AG 877-543-6757	www.jungheinrich.com
Fortna Inc. 610-370-8000	www.fortna.com	Kenco 423-622-1113	www.kencogroup.com
G&D Integrated 300 E. 5th Avenue Suite 101 888-289-0489 Fax: 630-778-7188 Email: sales@gdtr.com Services: G&D Integrated, a specialized provider of transportation and logistics services, has over 100 years of experience advancing global supply chain solutions. We provide asset-based domestic transportation, freight brokerage, intermodal drayage, contract logistics, warehousing, supply chain solutions and a variety of value-add services. We are Smart. Efficient. Logistics.	www.gdintegrated.com	Komatsu Forklift USA 847-437-5800	www.komatsuforkliftusa.com
Hal Systems 770-927-0700	www.halsystems.com	Linde Material Handling North America 843-875-8000	www.linde-mh.com
HighJump Software 952-947-4088	www.highjump.com	Lucas Systems, Inc. 724-940-7000	www.lucasware.com
Hyster Company 800-497-8371	www.hyster.com	Mitsubishi Electric Automation, Inc. 847-478-2100	www.meau.com
Hyundai Construction 678-823-7777	www.hceamericas.com	Motorola Solutions 847-576-5000	www.motorolasolutions.com
Intelligrated Inc. 866-936-7300	www.intelligrated.com	Murata Machinery USA, INC. 800-428-8469	www.muratec-usa.com
Interlink Technologies 419-893-9011	www.thinkinterlink.com	Narrow Aisle, Inc. 214-819-4180	www.narrowaisleinc.com
Intermec 425-348-2600	www.intermec.com	Numina Group Inc. 630-343-2600	www.numinagroup.com
		Pflow Industries, Inc. 414-247-9800	www.pflow.com
		Polymer Solutions International 877-444-7225	www.prostack.com
		Power Designers USA LLC. 608-231-0450	www.powerdesigners.com
		Presto Lifts Inc. 508-952-4000	www.presto-lift.com
		Ralphs- Pugh Co. Inc. 707-745-6363	www.ralphs-pugh.com
		Rapid Industries, Inc. 502-968-3645	www.rapidindustries.com

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Company Name	Website
Raymond Corporation 22 South Canal Street 800-235-7200 Fax: 607-656-9005 Email: marcom@raymondcorp.com Services: Raymond designs eco efficient Lift Trucks, custom-designed solutions, telematics, fleet and warehouse optimization systems; and offers world class support with expert technicians that provide maintenance and service. Raymond provides training and offers industry-leading warranties, financing, rentals and pre-owned Lift Trucks along with comprehensive one stop shopping for parts.	www.raymondcorp.com
Redwerks Corporation	www.reddwerks.com
512-257-3031	
Retalix	www.retalix.com
630-213-3080	
Rite-Hite	www.ritehite.com
414-355-2600	
Ryson International, Inc.	www.ryson.com
757-898-1530	
S P G International, LLC.	www.spgusa.com
847-541-6500	
Sackett Systems, Inc.	www.sackett-systems.com
630-766-5500	
SAG (Securitag Assembly Group Co., Ltd.)	www.sag.com.tw
+886-4-2492-5298	
Sage Automation	www.sagerobot.com
409-842-8040	
Sapient Automation	
877-489-7301	
Schaefer Systems	www.ssi-schaefer.us
704-944-4500	
Seegrid Corp.	www.seegrid.com
412-621-4305	



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Company Name	Website
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SEW- Eurodrive Inc.	www.seweurodrive.com
864-439-8792	
Shockwatch	www.shockwatch.com
214-937-4936	
SI Systems	www.sih.com
610-252-7321	
SICK	www.sick.com
952-941-6780	
Snapfulfil SaaS W M S	www.snapfulfil.com
843-577-5007	
Softeon	www.softeon.com
703-793-0005	
Speech Interface Design, Inc.	www.speech-interface.com
412-323-1135	
Speedrack Products Group, Ltd.	speedrack.net
800-752-7352	
Spiratex	www.spiratex.com
734-722-0100	
Stanley Vidmar	www.stanleyvidmar.com
610-776-3810	
Steel King Industries, Inc.	www.steelking.com
715-341-3120	
Supply Chain Services	supplychainservices.com
866-205-4310	
Swisslog Logistics Inc.	www.swisslog.com
757-820-3400	
System Logistics	www.systemlogistics.com
207-784-1381	
Systems Application Engineering (SAE)	www.saesystems.com
713-783-6020	

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Company Name	Website
Tailift USA Co., Inc. 909-930-9802	www.tailift.com
Taylor Made Cases 919-209-0555	www.taylormadecases.com
TECSYS Inc. 514-866-0001	www.tecsys.com
TEKLYNX International 414-837-4800	www.teklynx.com
TGW Systems 231-798-4547	www.tgw-group.com
The Raymond Coporation 607-656-2311	www.raymondcorp.com
Topper Industrial 262-886-6931	www.topperindustrial.com
TotalTrax, Inc. 302-514-0600	www.totaltraxinc.com
Toyota Materials Handling 510-675-0500	www.tmhnc.com/
TranSystems 800-800-5261	www.transystems.com
TriEnda LLC. 608-742-5303	www.trienda.com
UNARCO Material Handling 615-384-3531	www.unarcorack.com
UNEX Manufacturing Inc. 732-928-2800	www.unex.com
UniCarriers Americas Corporations 815-568-0061	www.unicarriersamericas.com
United Sortation Solutions 410-363-6345	www.unitedsortation.com
UPS Logistics Technologies 410-847-1900	www.roadnet.com
Van der Graf 905-793-8100	www.vandergraaf.com
Vanderlande Industries 770-250-2800	www.vanderlande.com
VARGO Companies 614-876-1163	www.vargosolutions.com
viastore systems, Inc. 616-977-3950	us.viastore.com

Company Name	Website
Vidir Inc. 204-364-2442	www.storevertical.com
Vitech Business Group, Inc. 360-647-1622	www.vitechgroup.com
Vocollect 412-829-8145	www.vocollect.com
W & H Systems 201-933-7840	www.whsystems.com
Webb-Stiles Co 330-225-7761	www.webb-stiles.com
Westfalia 717-764-1115	www.westtaliausa.com



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Email: info@wildeck.com

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Witron Integrated 847-385-6000	www.witron.com
Wynright 847-595-9400	www.wynright.com
Yale Materials Handling Corp. 252-931-5535	www.yale.com

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Saia LTL Freight



Richard D. O'Dell
President and CEO



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Because of our anniversary, not only is it noteworthy to reflect on our history and admire how far we have come, but it's also appropriate to thank our valued customers. We appreciate your business and support! Here's to another great 90 years!



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