**Introduction**

It’s a familiar story.

The U.S. subprime mortgage crisis was only one of several events that contributed to the recession of 2008-2009, and a global financial crisis. Large financial institutions faltered and the domestic automotive industry received an unprecedented bank bailout and a stimulus package from the federal government. Several years post-recession, the U.S. economy is still dealing with modest growth, high unemployment, slowing growth in business fixed investment, and tight credit availability. Welcome to the “new normal.”

The new normal operating environment prompted companies to drastically reduce costs, preserve cash, actively seek new business opportunities, and change operating policies as traditional ways of doing business were no longer effective.

Since the demand for transportation is derived from the demand for goods, these events also affected the transportation industry. Moreover, in addition to the challenges posed by the new normal business environment, transportation providers are dealing with their own unique issues, such as changes in the hours of service, observance of CSA 2010 rules, driver shortages, internal organizational factors, rapidly changing fuel prices, limited access to credit, high debt loads, and more expensive equipment – just to name a few.

The past five years have proved one fact – the operating environment will become more challenging. The external and internal factors that many shippers, 3PLs and carriers are contending with today will only magnify into the future. Current geopolitical events in the Middle East and North Africa will continue to keep fuel prices high. While hours-of-service is still a hot topic in Washington, there is little debate that changes in hours-of-service regulations will constrain transportation capacity and productivity will be negatively impacted. This is happening at a time when transportation providers are battling for qualified drivers in an ever shrinking demographic.
To compete in an economy where all the rules have changed, shippers, 3PLs and carriers have to adapt to this new operating environment by developing better ways of working together. They must build a bridge that connects and leverages the resources and talent of their respective organizations. One of the most compelling reasons for building the bridge is increasing transportation costs.

A recent study found that transportation spending as a percent of sales increased significantly from 2011 to 2012. The percentage of companies that spent more than five percent of sales on domestic transportation increased by 5.5 percentage points year-over-year, with some 26.7 percent of companies that participated in the study spending at this level. For many companies this increase represents millions of additional dollars. It’s not just the upper range of spending that increased. The percentage of companies spending 4-5 percent of sales on transportation also increased dramatically from the previous year.

This isn’t just a blimp in the data, as the changes are real. The graph shows an increase in the cost of transportation as a percent of sales since the recession. The trend for transportation spend suggests that we are quickly moving to pre-recession spending levels as more and more companies are spending greater than 5 percent of sales on transportation. Given the operating conditions discussed earlier, many are predicting that costs will surpass the pre-recession heights.
The second observation is that as transportation spending commands a larger portion of the sales dollar, it is important that the value of this activity be clearly articulated. Understanding of the value created by transportation has to be communicated by the providers to the shippers, and internally by the transportation professionals to the rest of the organization. Without this knowledge and understanding the transportation budget could easily become a target for cost reduction without due thought to its role in revenue enhancement or profit maximization.

Without an understanding of the role that transportation plays in enabling a company to respond to a changing operating environment, costs will increase and the ability to meet customer requirements declines. Overall supply chain performance will deteriorate. To successfully operate our supply chains we have to cultivate relationships with our partners, manage our performance and utilize the appropriate technologies. Each of these key themes is discussed next.

**Building the Substructure through Visibility**

The strength of a bridge depends on the quality of its substructure. A great deal of engineering design and careful detail in construction is needed to ensure that the foundation will support the bridge over an extended time. Visibility is the substructure of the supply chain bridge. It is the capability that provides support for the supply chain infrastructure. The foundation enables construction and connection of the bridge decking just like visibility is needed to connect supply chain partners. Visibility allows us to share data and information to see where our products are in the supply chain and how each partner in the supply chain needs to respond in order to ensure that service expectations are met – even when changing demand conditions exists. The data act as a feedback loop, showing us how we can cooperate and truly transform our supply chain performance. And it is a feedback loop that is getting better over time.

A measurement of visibility across the domestic supply chain is depicted in the chart below. The scores denote various positions in the supply chain, and they are a composite of multiple points for each position from raw materials inventory levels to finished goods inventory on the retailer’s shelf. The scores represent the visibility that the focal firm has when it considers upstream and downstream flows reported a small but positive increase in visibility as well.
The year-to-year visibility of the physical flow on both the inbound and outbound sides increased. Outbound shipments improved most noticeably from 2011, moving from 4.7 to 5.1 (scale: 1 = not very visible; 7 = very visible). The highest level of visibility in the supply chain is for products and materials in motion. Transportation providers play a critical role in connecting geographically disperse supply chain members.

The roadblocks / construction hazards to building a foundation that will enable efficient and effective supply chain flows over time are the same ones that have hindered organizations from achieving true visibility since this capability was first noted as a critical one in the early 2000s. Research indicates that the inability to collaborate can primarily be attributed to two main issues: a lack of systems and functional integration. Other issues include a clear understanding of data required to support visibility, and organizational support for new software development to enhance visibility capabilities.

The technologies being used by companies for visibility continue to evolve. As the quality and sharing of data improves, it is important that it is used to help our partners improve as well. Using the data to point fingers on missed performance will only deteriorate trust between the partners and will lead to poorer levels of performance over the long term.

**Measuring the Performance of the Bridge**

A physical bridge’s performance is measured for a number of reasons including: it facilitates improvement of conditions and services, and it shows tangible results to customers and stakeholders. These same reasons compel companies to measure their performance. As a key activity in the supply chain, measuring transportation performance is a way to assess the effectiveness of allocated resources. For example, knowing a transportation provider’s on-time performance is critically important for shippers. On the demand side, on time performance
affects inventory levels and determines product availability; on the supply side on time deliveries facilitate lean operations that maximize efficiency.

However, not all shippers will use the same measures of performance to assess the performance of the transportation provider – the measures that are used will largely depend on a shipper’s strategy. The most commonly used performance measures are on time delivery, loss and damage, correct invoice, equipment availability, and turndown ratio.

The Annual Trends and Issues in Logistics and Transportation study tracks five key measures of performance (KPIs) for various modes and methods of transportation. The data in the table details the performance across 16 industry sectors (reported as “Industry Average” in the table) and those specifically for the consumer packaged goods (CPG) industry for truckload (TL) and less-than-truckload (LTL). The data show that some elements of service reported for CPG companies are better than the overall industry average while other elements are worse.

### Measuring Transportation Performance

<table>
<thead>
<tr>
<th>Measure</th>
<th>TL</th>
<th>LTL</th>
<th>TL</th>
<th>LTL</th>
</tr>
</thead>
<tbody>
<tr>
<td>On time delivery</td>
<td>93.9%</td>
<td>93.8%</td>
<td>95.4%</td>
<td>98.0%</td>
</tr>
<tr>
<td>Loss and damage</td>
<td>1.0%</td>
<td>1.9%</td>
<td>1.4%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Correct invoice</td>
<td>96.1%</td>
<td>94.6%</td>
<td>92.0%</td>
<td>91.9%</td>
</tr>
<tr>
<td>Equipment availability</td>
<td>94.0%</td>
<td>97.0%</td>
<td>95.6%</td>
<td>99.4%</td>
</tr>
<tr>
<td>Turndown ratio</td>
<td>2.5%</td>
<td>0.4%</td>
<td>2.0%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

#### On Time Delivery

On time delivery affects a company’s ability to meet commitments to customers, internal efficiency, and financial health of the company due to its impact on the cash-to-cash cycle. By far, on time delivery is the most important service element for shippers in planning their operations.

Performance for on time delivery has been mixed for both TL and LTL operations. First, on time delivery for TL has been oscillating for the past three years as shown in the chart. While on time performance for TL in 2010 was one of the worst recorded for some time,
transportation providers were unable to sustain the improvement in this area from 2011 into 2012. At 93.9 percent, the 2012 on time performance for TL falls short of the performance level that is needed for today’s lean supply chains.

LTL has also exhibited the same fluctuating trend as TL. After recording one of the largest drops ever in 2011, LTL showed considerable improvement in 2012 when service rose to 93.8 percent – the same as TL on time performance. The line between TL and LTL has blurred considerably over the past few years as the competition for freight has escalated between all transportation providers. Service is a critical differentiator for shippers in selecting a 3PL or carrier for a specific move, and particularly for determining which providers they would like to develop a strategic relationship.

It is interesting to note that TL and LTL for the consumer package goods industry outperform the overall respondents. One thought is the toughness of consumers and their unwillingness to tolerate delay, especially with the availability of substitute goods readily at hand, focuses the resolve of this group to maintain high levels of performance. Another thought could be the readily available equipment to fill the needs of shippers.

**Loss and Damage**

Unlike on time delivery, overall performance for freight loss and damage has been exceptionally good. Both TL and LTL reported less freight loss and damage than the previous year. LTL posted the most improvement, decreasing loss and damage by 2.1 percentage points.
However, the CPG industry reported a higher rate of loss and damage. The global reach of today’s supply chains necessitates that product arrive in the “right” amount and condition as specified by the customer. Dealing with overages, shortages, and damage is a non-value activity that drains a company’s productivity. Ultimately it affects a company’s ability to effectively contribute to supply chain performance that must be competitive with other supply chains.

Correct Invoice

In this new normal economy, where cash is critical for every company, improving performance for correct invoices is vital. Incorrect invoices are costly to all parties involved. First, it delays payment; forcing companies to pay more in interest. Second, it causes companies to continue to use shrinking pools of credit while waiting for payment, meaning less available funds to support operations. Finally, the time spent correcting invoices involves personnel who could be doing more value-added activities for customers.

Largely for TL, performance has remained unchanged for the past three years. LTL, which suffered from a substantial decline in performance for correct invoices in 2011, showed noteworthy improvement for 2012.

Correct invoices are a challenge in the CPG industry for both TL and LTL. There are a variety of issues that contribute to incorrect invoices including:

6. Deductions
from invoices that the customer feels are warranted, a pricing structure that involves multiple brackets, changes in prices, and a vast array of promotions that are used in this industry. Whatever the cause (or causes), it is obvious that more work is needed to improve this important performance element.

**Equipment Availability and Turndown Ratio**

The ability to deliver freight for on-time delivery relies heavily on the 3PL or carrier having equipment available and accepting the load. The same variability that has been experienced with on time deliveries over the past three years has also occurred in equipment availability. Tightening capacity in 2011 was evidenced by declining equipment availability; while the situation improved in 2012, performance is still not back to 2010 levels for both TL and LTL. What has improved significantly in 2012 is the turndown ratio.

**Tendering Freight is Getting Easier**

<table>
<thead>
<tr>
<th>Measure</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TL</td>
<td>LTL</td>
<td>TL</td>
</tr>
<tr>
<td>Equipment availability</td>
<td>95.7%</td>
<td>98.0%</td>
<td>92.4%</td>
</tr>
<tr>
<td>Turndown ratio</td>
<td>4.9%</td>
<td>5.9%</td>
<td>4.6%</td>
</tr>
</tbody>
</table>

Whether this reflects a less-than-robust economy with lower freight volumes, or a more competitive transportation environment, the end result is that fewer tendering cycles are needed to get a load accepted by a transportation provider.

The turndown ratio is closely aligned with equipment availability. 3PLs and carriers have become much more cognizant of what business is “good” business for them. Working collaboratively with their strategic partners, transportation providers are doing a much better job of defining the freight and freight lanes for which they add value. These efforts have led to a reduction in the turndown of shipments.
Overall, the performance results support the belief that demand and capacity are somewhat balanced at this time. Since the recession, many transportation providers have become much leaner than ever before. Eleven of the publically traded trucking companies are down in capacity. Some transportation modes and lanes are experiencing a tightening of capacity, and the estimated impact of the changes that we discussed earlier is an additional 10 percent reduction in capacity. These factors will ultimately have an impact on many – if not all - of the KPIs.

We’ve made several comments on the CPG industry for a specific reason. Evidence suggests that this sector, perhaps more than others, faces some tough challenges. The first involves demand volatility. As a result of the recession consumers have changed their shopping patterns. Purchase quantities are much larger at the beginning of the month and as the budget shrinks during the month, so does the amount that is bought. Secondly, an increase in direct-to-consumer distribution has CPG firms grappling with how to balance service and cost with smaller and smaller shipments. While LTL has posted better service, the savings for consolidating loads to ship TL volumes is certainly appealing.

Spanning the Distance: Connecting Strategic Partners

While every part of a bridge is important, perhaps the most distinguishing part of the structure is its span. The span can be simple, continuous, or cantilever. Bridges are often classified and listed according to the length of their main span. The length of the span determines the distance that can be traversed over physical barriers. Cantilever bridges are noted for the long distances they cover.

In the same manner, technology is the “spanning” structure in a supply chain. Technologies used by companies today have evolved into intricate systems that deliver information in an efficient and effective way to members of a supply chain.
that are globally located. Just like the different bridge spans, there are also different types and levels of supply technologies from simple to sophisticated.

There is a vast amount of technology applications available for shippers, 3PLs and carriers to manage domestic transportation. It runs the gamut from manual to near real time automation as presented in the chart above.

The manner in which the technology is leveraged is important. It is not sufficient to simply make operations more efficient. The technology and the data it generates must be used to transform how the company manages its supply chain flows. This involves analysis that can lead to fundamental changes in the company’s strategy and tactics.

The “right” transportation system provides the tools that enable a company to maximize efficiency and reduce costs. In addition, it offers real-time visibility to effectively plan and execute deliveries. Some of the technology currently being used by companies, such as manual techniques, spreadsheets, or systems developed in house, do not have these capabilities. As companies realize the value that can be derived from a transportation system, many of them are migrating to more sophisticated technology platforms. The data indicate that companies are choosing several paths including software that is part of the ERP, best-of-breed either installed or SaaS, and the use of 3PL technology. Because 3PL providers manage many parts of the supply chain, their software is generally equally substantial in scope, enabling them to integrate and leverage multiple supply chain technologies.

Technology has been one of the greatest equalizers for supply chain management. It has allowed organizations to navigate and improve their performance in the supply chain value curve.

Technology that enables real-time access to data and information between partners has supported a global span of the supply chain.

“We strive to serve as strategic partners at Access America, in addition to tactical ones,” says Chad Eichelberger, President at Access America. “It may be as simple as helping a customer to pool several LTL shipments into a single truckload or a more complex network redesign. Either way, we like to avoid the ‘order taker’ environment and serve a much more proactive role.”

“Access America has experienced significant strategic advantage in how we leverage our technology for our clients,” says Amber Miller, Vice President of Technology. “Our systems are open source and cloud based, so we can adapt our solutions to virtually any platform to increase visibility both up and down the supply chain.”
Achieving Breakthrough Performance

Continuous improvement is the mission for every professional – whether the final goal is to maximize profitability, increase customer satisfaction, or reduce costs. As such, transportation and logistics are key areas that are often looked at for achieving these goals and objectives. In an environment where rising transportation costs are a major concern, the compelling question is - What are companies doing to offset this increase?

The top five initiatives shown in the figure are ones that have consistently appeared in research over the past few years. A recent study found that one of leading actions being utilized, and perhaps one of the most promising ones, is the use of core (or strategic) transportation partners. To be successful, both shippers and carriers must be fully committed to the relationship. The list of the top five initiatives also reveals that there aren’t a lot of new actions being taken to stretch the transportation dollar. To increase operational capability, more strategic initiatives are needed such as increased collaboration with key customers or improved information sharing with key external suppliers.

In addition to efforts to reduce transportation costs, companies are actively working to develop greater flexibility to respond to changing conditions.
Transportation plays a critical role in increasing flexibility; some 57.8 percent of companies are using multiple modes of transportation in order to meet delivery schedules. This initiative far outweighed other actions that companies have taken to date. Like the effort to reduce transportation costs, achieving increased flexibility involves operational, tactical, and strategic actions. The common ground between transportation cost reduction and increased flexibility is at the strategic level – it involves collaboration, information sharing and greater than ever speed in fulfillment lead time.

**Building a Value Based Bridge**

It’s a familiar story, with a familiar question. Now what?

Some may suggest that the changes facing transportation and distribution today are minor and inconsequential. Some suggest that cost cutting and efficiency will guarantee survival. Nothing could be further from the truth. Market dominance is not based on a company’s ability to cut costs and become efficient, but in its ability to provide greater value to an ever more discerning set of customers. This can best be done by building significant and meaningful relationships with key supply chain partners – building a value based bridge.

Building a supply chain bridge requires a solid foundation or substructure for the pilings and decking that will follow. For supply chains, this foundation is tactical data, provided in a real time, to make both operational and strategic decisions. This requires internal and external linkages across logistics and transportation in order to meet an increasing variety of customer needs. Because of demand fluctuation companies must be able to quickly meet different customer requirements at the “right” cost, time and place while creating maximum value for the company.

The supply chain must also be capable of developing and delivering logistics and transportation services that are viewed by its customers as distinctly different from those of competitors. Many companies consider their distinction to be
the development and providing of custom services that enables them to grow their revenues, build customer loyalty, and/or acquire new customers. In other words, it creates value add.

The ultimate goal is to combine the powers of efficiency, flexibility and differentiation to create an organization that produces long-term, sustainable value for itself and its supply chain members.

Building your supply chain bridge requires a focus on the essentials, and a deep understanding of how supply chain partners play a key role in defining success. It is one that leverages responsiveness to provide greater value in delighting customers. It is one that encourages everyone to continually look for ways to add value.

It is a story worth writing.

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About the Authors

University of Tennessee

Dr. Mary Holcomb is associate professor of logistics in the College of Business at The University of Tennessee. Her professional career includes eighteen years at the Oak Ridge National Laboratory in transportation research for the U.S. Department of Energy, U.S. Department of Transportation, and the U.S. Department of Defense. Dr. Holcomb’s background also consists of varied industry experience with Milliken & Company, the former Burlington Northern Railroad, and General Motors. Her research has appeared in the Journal of Business Logistics, Transportation Journal, the International Journal of Logistics Management, and Supply Chain Management Review.

The University of Tennessee, Knoxville, has been recognized as one of the premier institutions of higher learning focused on supply chain management. Its Supply Chain Management/Logistics programs consistently receive top marks in rankings by U.S. News and World Report, AMR Research, Supply Chain Management Review, Supply Chain Digital, and others. The faculty publishes widely on topics of current industry concern and explores future trends through research and studies.

For further information, please visit http://mlt.bus.utk.edu
Karl B. Manrodt, Ph.D.

Dr. Karl Manrodt is a professor of Logistics and Intermodal Transportation at a regional university in South Georgia. Research interests revolve around strategic sourcing, performance measurement, the role of logistics / supply chain management in health care. His publications have appeared in such journals as the Supply Chain Management Review, Transportation Journal, the International Journal of Physical Distribution and Materials Management, Interfaces, and the Journal of Business Logistics.

For further information, please visit http://www.manrodt.com.

Access America Transport

Jason Provonsha, Senior V.P. of Sales
Jason Provonsha is Senior Vice President of Sales for Access America Transport, where he leads the company’s corporate business and client development efforts, particularly focused on Access America’s more than 90 Fortune 500 clients. Prior to joining Access America, he led sales and revenue functions for True North Custom Media, a content marketing firm focused in healthcare and financial services.

http://www.linkedin.com/in/jasonprovonsha

Chad Eichelberger, President
Chad Eichelberger is President at Access America Transport where he leads day-to-day operations for one of America’s fastest growing third-party logistics providers. Chad’s role with the company has evolved over the past nine years as Access America increased sales from $8 million to over $500 million in that time span. He holds a degree in logistics from the College of Business at The University of Tennessee.

www.linkedin.com/in/chadeichelberger

About Access America Transport
Access America Transport is a third-party logistics company based in Chattanooga, Tennessee. The company operates ten locations in seven states and specializes in truckload, less-than-truckload, and supply chain management services for more than 5,000 clients throughout North America. AAT is ISO 9001:2008 certified, SmartWay approved and an industry leader in technology. Forbes magazine recently ranked Access America #9 on its annual list of America’s Most Promising Companies.

For further information please visit http://www.aat.com.
The content of this paper is based on the findings from the 24th *Annual Trends and Issues in Logistics and Transportation*. There were 1,370 participants, representing 16 industry sectors. In total, the study group accounts for $50.6 billion in transportation expenditures which is approximately 6.7 percent of total transportation expenditures.