

# LOGISTICS 2030

## NAVIGATING A DISRUPTIVE DECADE

Year 1-Freight Transportation

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## A Brief Note of Introduction

*To say that 2018 was a transformative year for transportation would be an understatement at best. Shippers and carriers alike were scrambling to secure capacity...and secure that capacity at reasonable rates. This volatility coupled with ongoing changes to our transportation networks prompted us to launch the Logistics 2030 (L-2030) study.*

*The year 2030 is not a long way off. Over the next twelve years, supply chain professionals will encounter many challenges and rapid change. It is important to assess the strategies, requirements, and tools that will shape supply chains and drive success over the next decade.*

*A team of experts from Auburn University's Center for Supply Chain Innovation, the Council of Supply Chain Management Professionals (CSCMP), the National Shippers Strategic Transportation Council (NASSTRAC), and AGiLE Business Media (publisher of DC Velocity & CSCMP's Supply Chain Quarterly), has undertaken a multi-year study of these future issues. Over the next few years, the L-2030 study will address key elements of the emerging supply chain.*

*Our obvious first choice for study was transportation management, specifically, as the function exists within the shipper community. We collected expert insights on future transportation issues via a survey, focus groups, and individual interviews. The resulting information is contained in this report.*

*We would like to thank all the transportation professionals who participated in this study and hope you will find the information contained within this report useful to your transportation/supply chain networks.*

*Thank You and Best Regards,*

*Gail Rutkowski*

Executive Director



*Rick Blasgen*

President and CEO



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## THE IMPERATIVE

*Supply chains are growing more complex, and challenging. Where this revolution will lead us over the next decade is worthy of analysis. The Logistics 2030 study investigates the likely drivers of future supply chain success.*

## ABOUT THE STUDY

*“Three converging storm systems – carrier capacity reduced by economic issues, excessive dwell time at facilities and driver shortages; government regulations (e.g., Hours of Service) further reducing capacity; and customers demanding smaller, frequent shipments – are placing unprecedented pressure on the transportation department.”<sup>1</sup>*

Nearly 14 years ago, Peter M. Stiles wrote a CSCMP Supply Chain Comment article about the “perfect storm” in freight transportation and the related fallout for shippers. That storm subsided during the Great Recession but has re-emerged with the U.S. economic recovery. Capacity availability is, once again, under pressure.

As highlighted in the 2018-19 NASSTRAC, CSCMP, and TranzAct Technologies Perfect Storm webinar series, shippers are faced with rising transportation rates and shrinking capacity. This nasty tempest results from the convergence of growing freight demand, expanding government regulations, and shrinking unemployment. Add the expanded need for last mile delivery due to the unprecedented growth of e-commerce, and the transportation superstorm may continue for some time.

It is within this turbulent environment, where the pendulum has swung in favor of the transportation provider community, that that we begin the Logistics 2030 (L-2030) series. Over the course of 2018, we collected information on the current practices and analyzed the future initiatives through which companies seek to achieve consistent and cost justifiable freight flows. Both C-level executives and customers will be keeping close watch on the outcomes.

In the pages ahead, our analysis provides a comparative view of today’s realities versus next decade’s possibilities. These findings are based on the expert insights from hundreds of transportation professionals. We truly appreciate the participants’ collective willingness to provide candid perspectives on their go-forward plans. We hope that you gain valuable takeaways to help stormproof your transportation processes for the coming decade.

## Research Objectives: Transportation in 2030

Our initial L-2030 series report targets transportation, the most challenging and costly elements of logistics. We investigate the substantive issues that warrant a shipper's earnest consideration today and in the future:

*Transportation Tactics:* How can strategically aligned capabilities overcome capacity and cost challenges?

*Transportation Talent:* How will shippers best acquire and cultivate their future transportation leaders?

*Transportation Technology:* Which game-changing tools will drive freight delivery excellence?

In the pages ahead, we present future-focused analyses of these key questions, along with actionable takeaways. The report also highlights the future issues and investment decisions that transportation professionals must address.

## Study Methodology

The L-2030 research priorities were derived through analysis of industry trends, conversations with transportation executives, and engagement in the Perfect Storm webinars. To gain insights from a diverse set of shippers, we sought input from NASSTRAC and CSCMP members, as well as DC Velocity and CSCMP's Supply Chain Quarterly subscribers.

Transportation expert input was captured three ways:

*Expert Panels:* Two hourlong focus groups with transportation professionals uncovered their most pressing issues in the current freight market.

*Online Survey:* A 27-question survey captured participants' go-forward freight management plans.

*Interviews:* Follow up discussions dug deeper into participants' future strategies and spending plans.

This research approach engaged U.S. transportation professionals from a wide spectrum of company types and sizes. Thus, this study effectively captures experts' views on freight transportation as we work toward the year 2030.

## KEY NUMBERS

*12 panel participants*

*420 survey respondents*

*6 individual interviews*

*37% of participants  
from large companies  
(revenue over \$1 billion)*

## THE QUANDARY

*“Our pressing issues are inflation and rising cost pressures across all modes. We are all about year-over-year total cost reduction and that’s making things difficult right now.”*

## ISSUES AND INVESTMENTS

*“Our customers are being conditioned around speed like we have never seen before. The big fish out there is delivering things faster than we ever have, especially the direct to consumer deliveries. Trying to gain a competitive advantage in this environment is becoming increasingly difficult.”*

In the current logistics environment, transportation professionals must juggle a wide variety of responsibilities. Their longstanding focus on moving freight in a cost-efficient manner with reliable transit times is being diverted. As the transportation priorities graphics reveal, valuable time must now be devoted to the challenges of finding the labor and managerial talent to meet growing customer expectations.

Achieving cost control in an environment of increasing service requirements will only become more difficult. One focus group participant noted: *“More customers are looking for zero defect performance, but transportation execution is out of many people’s control. You are exposed to a market that has a tremendous amount of execution variability in it.”*

Nearly a quarter of the L-2030 participants agree, indicating that the single most important challenge over the next decade will be rising customer expectations followed by costs of technology deployment and freight operations. Mix in the perpetual driver shortages and capacity constraints highlighted by other respondents, and complexity will grow. Without question, the life of a transportation professional will continue to be “interesting” to say the least!

Conquering these challenges over the next decade to achieve transportation excellence will require a deft combination of technology enhancement, talent development, and operational transformation. That necessitates extensive investment in transportation capabilities, according to the L-2030 participants. The most pressing priority will be to upgrade technologies, noted by 86 percent of the survey respondents. Maintaining strong in-house transportation expertise will also compel companies to devote future resources to recruiting and retaining top talent with the expertise to balance competing service and cost goals.



# Transportation Priorities

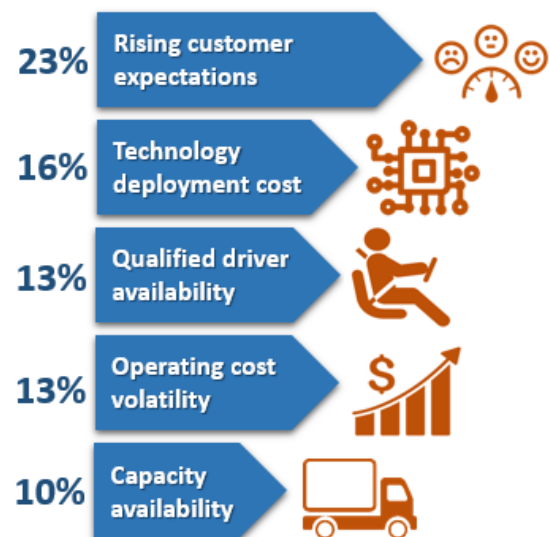
In 2018

## Major transportation challenges

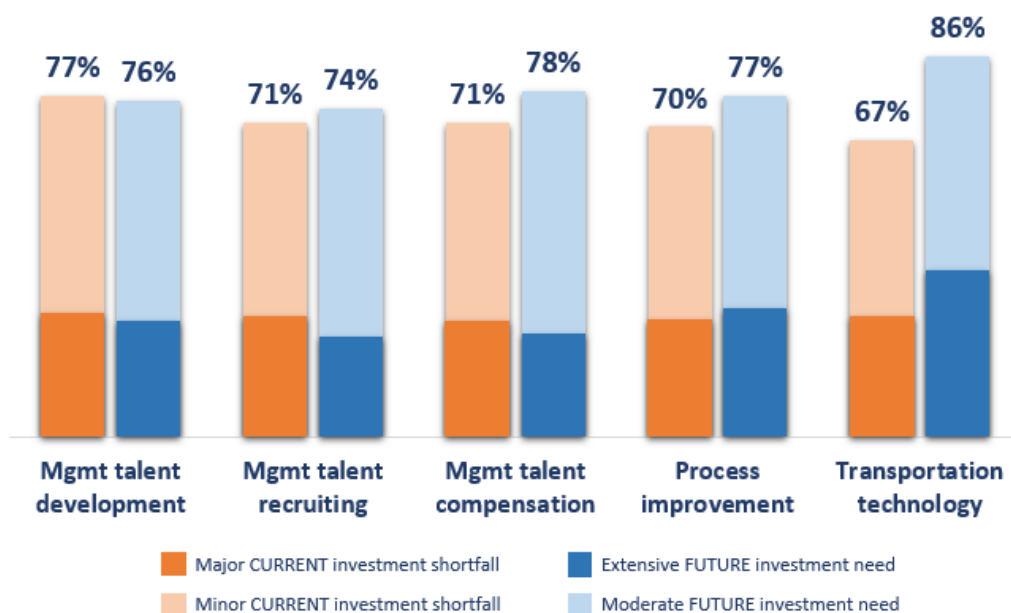


By 2030

## The single most important challenge



## Current and Future Investment





## THE KEY QUESTION

*“Are we executing the pieces so that we can remove time and cost from the supply chain?”*

## CRITICAL CAPABILITIES

*“We’re looking at people, processes, and technology in a holistic approach to transportation. That means taking some calculated risks to be successful whether that’s purchasing a new piece of technology or going with a new partner.”*

The complexities of transportation cannot simply be resolved by a new tool or the latest strategy. Instead, future success in meeting future delivery requirements will be achieved by talented people blending innovative tactics and technology. How companies plan to pursue excellence in these three areas was addressed in focus groups and survey questions.

## Tactics: Aligning Strategy and Situation

*“While we may have external pressures that are beyond our control, we must still execute internally. If there is something we can do to make ourselves more agile and efficient, then that is where we need to start.”*

Ensuring that customers are served with delivery excellence is the hallmark of the transportation department. Today’s landscape of instantaneous customer service calls for faster delivery than ever before. At the same time, heavy competition for scarce capacity and new regulations make the service task more challenging. Hence, having a clear strategic approach to transportation is essential for effectively competing in the marketplace.

Looking toward the future, the L-2030 participants expect that a broad array of transportation capabilities will become more critical. Specifically, tailoring service to customer needs, maintaining operational flexibility and capacity, advancing technology, and maintaining an extensive service network will be critical for future transportation excellence.

Given these concerns, we explored transportation strategies and tactics being deployed and planned by the L-2030 participants. The discussion and graphics provide insights into their organizational perspectives on transportation, delegation of key responsibilities, and tactical control of outsourced processes.

## Organizational Focus

Understanding transportation tactics requires exploring how organizations prioritize the transportation function. The survey results reveal a strong focus with three-quarters of the L-2030 participants consider transportation as an organizational priority. Importantly, this focus will rise by 2030 and more firms will embed transportation in their supply chain processes.

Despite acknowledging transportation as a priority, work remains to be done at the C-level over the next decade. While 40 percent of the respondents do not believe that top management understands the function today, that number will drop to 16 percent by 2030.

A related issue is strategic alignment. Currently, just over half of the respondents believe that transportation processes are properly aligned with corporate strategy. The disconnect will shrink as corporate/transportation alignment will rise significantly by 2030. A director noted: *“The transportation group of the future is going to be less siloed and working much more with the sourcing teams.”*

Recognizing the increasing importance of transportation, 63 percent of the L-2030 participants have created specific goals and over 70 percent have deployed KPIs. The use of both will grow over the coming decade as companies look for transportation to positively impact the bottom-line.

## Functional Responsibility

With organizations signaling that transportation is a growing priority, it could be assumed that responsibility for managing transportation activities would reflect this belief.

That’s the case in the current competitive environment for most of the L-2030 participants. As the transportation tactics graphics reveal, key transportation responsibilities related to strategy, planning, operations, performance analysis, regulatory compliance and talent management are primarily internal functions with some companies using a hybrid model. Operations and technology are the key areas where the outsourced model is heavily relied upon.

BY 2030...

*89% of our participants expect transportation to be a company priority*

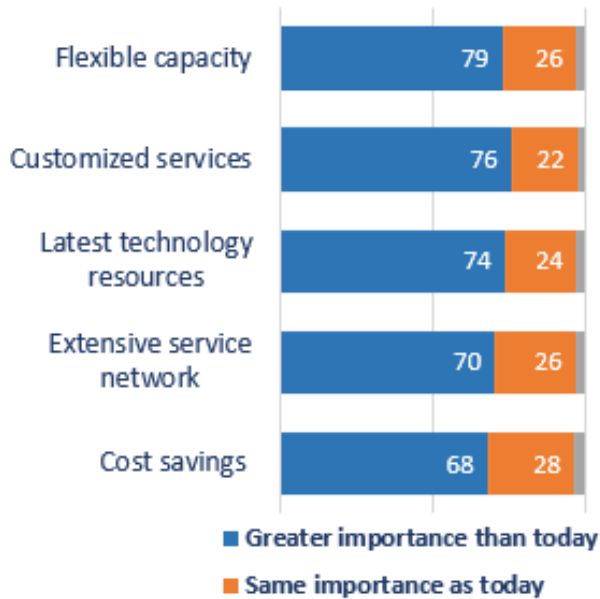
*91% of our participants will establish specific transportation goals*

*94% of our participants will be evaluated using specific metrics*

# Tactical Considerations

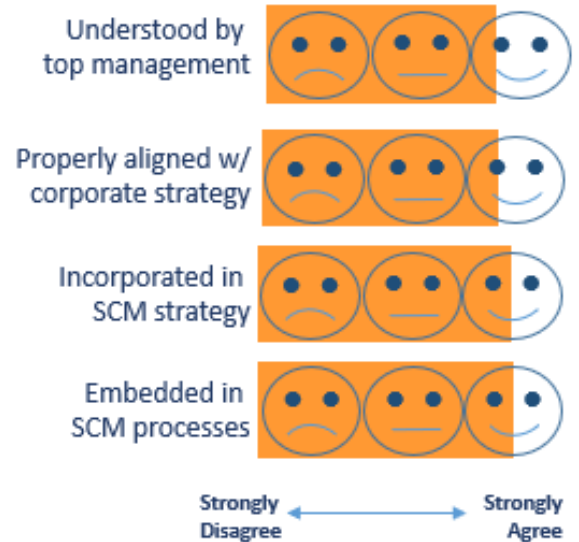
## Capabilities

*Importance of carrier capabilities in 2030*



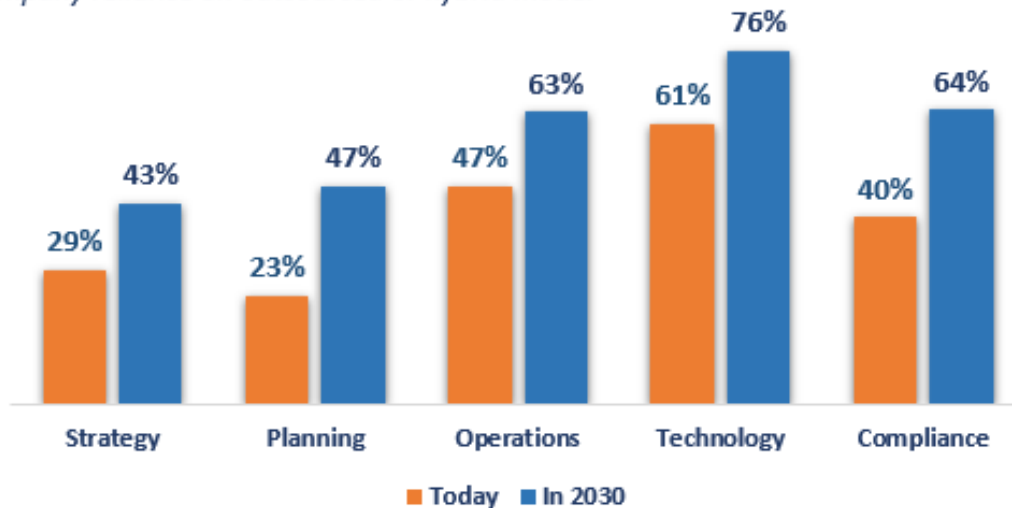
## Priorities

*By 2030 transportation will be...*



## Current and Future Responsibility

*Company reliance on outsourced or hybrid model*



However, the L-2030 participants anticipate a fundamental shift in future responsibilities. For every function reviewed, use of the outsourced and hybrid models will grow at the expense of the internal model. Overall, the most widely outsourced or shared transportation activities will continue to be technology, operations, and regulatory compliance.

The growth of outsourced transportation services will be widespread, according to L-2030 participants. Nearly 70 percent indicated that future use is expected to significantly or moderately increase. Fewer than 15 percent plan to reduce outsourcing or fully avoid it.

The largest percentage shifts from current to future reliance on external providers or shared governance will occur in the areas of transportation planning and regulatory compliance. These areas require specialized knowledge that can be difficult to find. *“The degree of difficulty in these transportation planning jobs often scares off great candidates who tell me it’s not healthy to be in transportation because you just get your head beat in,”* noted one transportation professional.

Transportation performance analysis is another critical area with significant importance to the organization. Top management has a strong desire to harness the treasure trove of transportation data for greater understanding and faster action. However, limited internal capabilities and/or resources will lead more than 50 percent of the L-2030 respondents to outsource the role or convert it to a hybrid function. One focus group participant shared: *“We’re not doing anything directly like we used to with spreadsheets and analysis, we’re handing that all over to 3PLs.”*

### *Outsourcing Success Essentials*

The anticipated combination of greater functional complexity and heavier reliance on external capabilities in the future will be a toxic combination if not managed properly. It will be essential for internal transportation professionals to properly vet, select, and manage their service providers. Otherwise, it will become hard to create accountability, maintain visibility, and drive service quality.

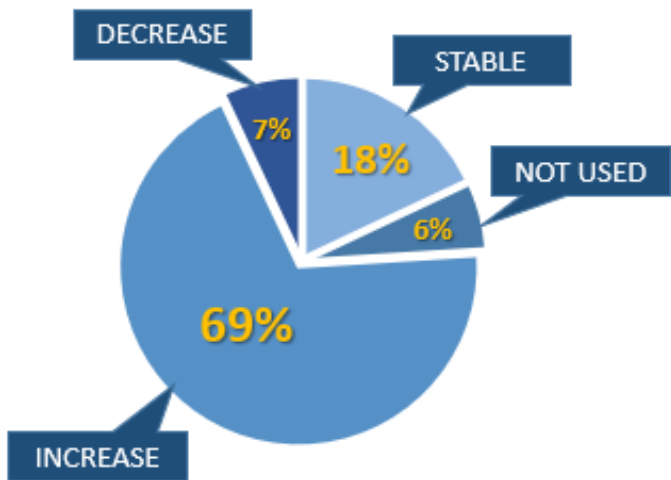
## THE OUTLIER

*“I’ve built an analytics department whose focus is turning the mountains of information that we store in data warehouse into something that’s usable and actionable.”*

# Operational Insights

## Outsourcing

*Intended future use of outsourced transport*



## Control

*Future use of oversight methods*



## Future Perspectives



The complexity of the transportation function will increase by 2030.



Our transportation process will receive adequate funding in the future.



By 2030, we will consolidate activity with fewer, more strategic carriers.

More than 80 percent of the L-2030 participants plan to consolidate activities with fewer, more strategic transportation service providers in the future. To become a strategic partner and capture greater volume, a service provider will have to dramatically bolster its capabilities. Chiefly, the carrier will need to offer flexible capacity and customizable operations, provide access to the latest technology resources, and maintain an extensive service network, according to our survey participants.

Another critical element will be maintaining adequate labor and equipment resources to meet goals. Those carriers that avoid problems will clearly separate themselves from the pack. One focus group member complained: *“Every carrier meeting I go to, we talk about service performance failures. The first thing that comes out of their mouth is the lack of drivers. But I have yet to hear any president or COO with any of these carriers come up with a creative solution.”*

Maintaining oversight of outsourced activities will require more active engagement of the transportation team. Widely used review meetings, KPI dashboards, and service scorecards will continue to be important in the future. The key growth area will be onsite engagement, according to the L-2030 participants. In the future, greater effort will be expended on embedding service provider representatives in customer operations and vice versa. These moves will generate operational expertise, drive greater visibility, and support faster response times when issues arise.

### *Key Takeaways*

Given the ever-increasing customer pressure for service excellence, organizations must prioritize transportation and develop appropriate tactics. Going forward, the complexity of these initiatives, combined with limited internal resources, will drive further dependence on outsourced operations, technology, and analytics. Finding capable service providers with whom to establish strategic relationships and developing strong control systems will help transportation professionals solve future challenges and create opportunities for organizational success.

## TRUST BUT VERIFY

*“Having a 3PL representative onsite day-in, day-out gives us direct accessibility that email or phone calls don’t. It ensures that our transportation needs are being executed the right way.”*

## THE CHALLENGE

*“What keeps me up at night? Finding great talent. I have seven open positions, including two senior roles with six-figure salaries. I’m having a difficult time hiring qualified people to fill those spots.”*

### Talent: Fostering Future Leadership

*“Being in transportation is kind of like being the field goal kicker. Nobody cares about you until you need three points on the board. But a lot of what is happening in the market today is shining a larger spotlight on transportation. Going forward, we have to become subject matter experts that drive supply chain value.”*

It is no secret that there is a growing labor crisis in the freight transportation sector. Highlights of this well-documented issue include a truck driver shortage that could grow to 210,000 by 2025, a global demand for airline pilots that is projected to increase by 790,000 jobs over the next 20 years, and a major push to hire locomotive engineers as railroads try to keep pace with greater demand. However, there is another looming aspect of the labor crisis that is not being widely addressed – the availability of qualified transportation professionals to lead this sector into 2030 and beyond.

As stated earlier, there is a growing need for strong in-house transportation expertise. To keep pace with this demand, manufacturers, retailers, and distributors in the focus groups noted that they must make transportation management a desirable career opportunity with the potential for professional growth and financial reward. A failure to raise the profile of transportation roles will be detrimental as top talent may migrate to more appealing career tracks.

Given these focus group concerns, we decided to take a deep dive into transportation talent management. The purpose of the survey questions was to investigate the strategies that companies will use to cultivate their future transportation capabilities. Specific areas of interest include:

- Articulating essential skills
- Hiring qualified professionals
- Developing bench strength

Each issue is analyzed with the goal of articulating what must be done to build a dynamic transportation team that will successfully navigate transportation issues in the future.



## Articulating Essential Skills

*“We look for general business skills and then do a fair amount of internal migration to transportation. Give people experience in front-line roles that will be the foundation for bigger jobs that lead to a supply chain career path.”*

In a talent-constrained market, many organizations have to be creative and flexible when trying to find transportation professionals. Sometimes that means pursuing individuals with the best available business skills and then help them to build transportation acumen. Among the survey respondents, capabilities like problem-solving, communication, analysis, and leadership top their lists of critical needs. While certainly important, transportation expertise was the fifth most important skill identified by the survey respondents.

A major concern of companies is the level of competition for individuals with these essential skills. At least 40 percent of the L-2030 participants indicated that analytical skills, leadership capabilities, and transportation expertise are either rarely available or not available in the marketplace today. Other areas of a significant talent deficiency included change management skills and relationship management competence. Thus, it is logical that companies are working to nurture talent internally. One executive noted, *“We have to provide specific technical training and leadership training as part of our onboarding and ongoing employee engagement plans.”*

Looking forward to 2030, the skills gap is not expected to be as acute as it is today. A significantly higher percentage of survey respondents predict that people with key skills will be readily or frequently available. The potential areas of challenge will be finding people with strong relationship management skills, leadership aptitude, and negotiations expertise. Going forward, companies should prioritize these areas in talent development initiatives. A failure to recognize this call to action will lead to problems as it will be difficult to find skilled individuals on the open market, regardless of the asking price.

## THE WORKAROUND

*“We’re bringing in people that we believe have good skills and can be coached up to quickly learn the transportation piece of the logistics puzzle.”*

# Talent Needs

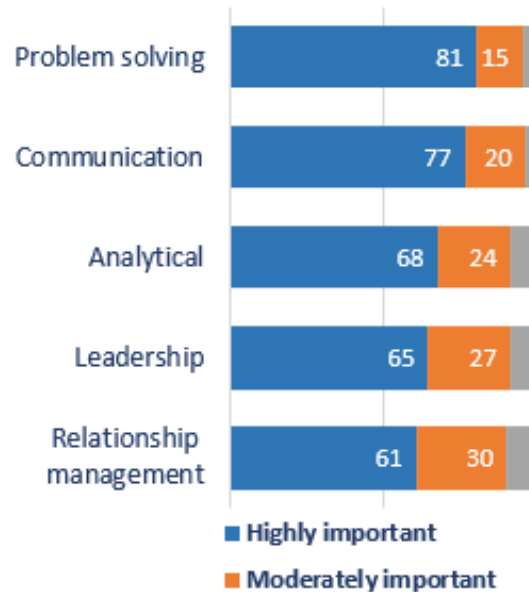
## Concerns

*Extensive staffing challenges by 2030*

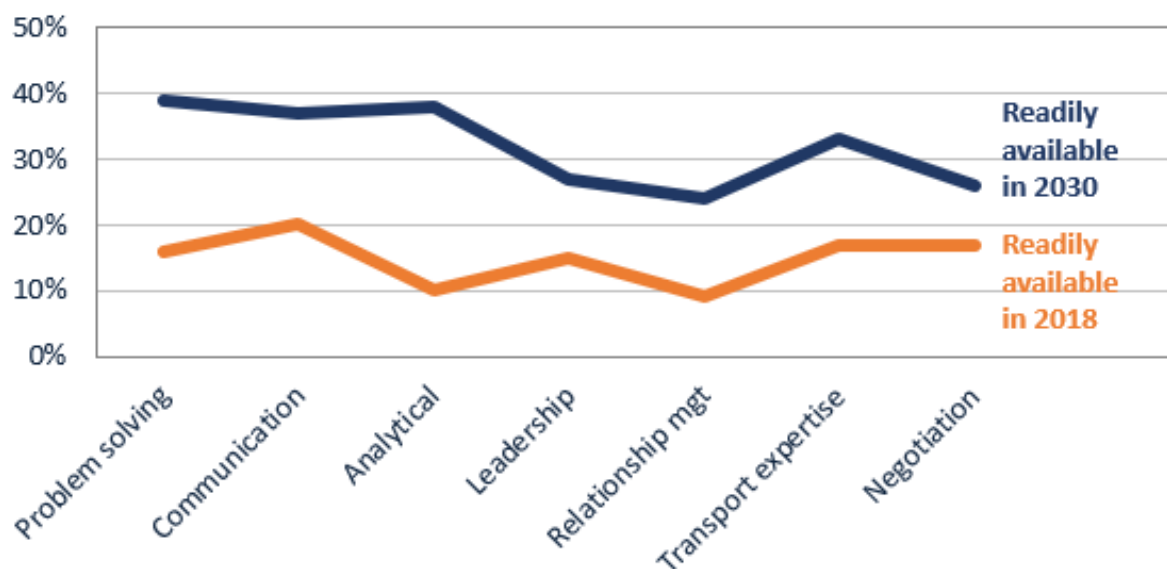


## Competencies

*Key skills for transportation pros*



## Transportation Skills Availability



## *Hiring Qualified Professionals*

The competition for transportation talent is already intense and will only grow more challenging as we move toward 2030. Shippers and carriers must be relentless in their pursuit of quality professionals and future leaders.

The L-2030 participants currently use a mix of passive and active recruiting methods. Widely used passive methods include posting opportunities on company websites, social media, and talent search websites. Active methods like employee referral programs, networking at industry events, and internship programs are also widely used.

The active methods are particularly good for targeting passive candidates who are not publicly searching for a new role but will consider the right opportunity. In fact, employee referral programs and internship programs were identified as being among the most effective recruiting methods, alongside company website postings and LinkedIn. One focus group participant touted the recruiting value of internships. He stated: *“We aggressively hire from our co-op and intern pool. These are six-month assignments and many students are now doing multiple rotations. We have 6 or 12 months to evaluate the students while they’re working for us.”*

Looking toward 2030, our participants recognize that the war for transportation talent will only intensify. They plan to become more creative and intentional with recruiting. Of the 11 recruiting methods analyzed, 10 will be more widely used in the future by the L-2030 participants. Methods with the largest anticipated expansion include posting on professional association websites like CSCMP.org, developing strategic alliances with universities, leveraging internship programs, increasing social media activity, and attending career fairs.

Some active recruiting methods will require a long-range perspective and a focus on relationship building with candidates. The L-2030 participants appear to be open to these changes. Over 94 percent of them agree or strongly agree with the statement: *We must revise our talent management practices to better attract and retain future generations of transportation management professionals.*

## THE TARGETS

*“We look for candidates that have some external training or experience. When recruiting, we focus on them first.”*

## THE QUICK FIX

*“Our transportation subject matter experts develop fundamentals “101” courses for new hires and deliver them in an informal lunch and learn format.”*

### *Developing Bench Strength*

*“For all supply chain roles and levels, we have created a list of competencies and tools that people should have. We do some training around those things where appropriate, but there’s not necessarily a formal internal program.”*

Training and development of transportation talent is critical to organizational success, particularly when companies hire individuals without experience in managing freight flows. It is also an essential element of building and retaining a strong bench of capable individuals.

Unfortunately, the current strategic approach to transportation talent development is inconsistent across the L-2030 participants. Less than 30 percent of their companies have a formal, structured program for talent development. In contrast, more than 30 percent of the companies have no organizational talent development program, forcing the individual into a do-it-yourself situation. That creates an environment of inconsistent professional growth. Poor retention is another risk as talented people may leave for companies committed to investing in their future development.

The good news is that talent development strategies should change in the future. Over 55 percent of the respondents anticipate having a formal transportation management talent development program by 2030. Noted one leader: *“We are doubling down on development for people with strong learning agility.”*

In terms of training methods, the L-2030 participants are heavily dependent upon on-the-job (OJT) training with more than 80 percent of them indicating extensive or moderate use. Other methods, including corporate training courses, leadership development programs, and mentoring, are deployed on a much less intensive basis. Unfortunately, fewer than 40 percent of the respondents rated these methods as being highly effective.

Future deployment is expected to grow across all development methods but OJT training will remain the favorite. This begs the question, will there be enough internal expertise and capacity to support effective and consistent OJT initiatives?

# Team Building

## Acquisition

*Extensive or moderate use of talent recruiting methods for transportation*

84% Company website posting

71%

83% LinkedIn / Social media

57%

80% Employee referrals

57%

78% Talent search websites

53%

In 2030

Today

## Development

*Structure of talent development program in 2030*



56%

Formal



29%

Informal



15%

None

vs.  
2019

100% ↑

26% ↓

26% ↓

## Priorities

*Top three future development needs*



#1 Analytics



#2 Leadership



#3 Planning & Forecasting



#4 Transportation Strategy



#5 Technology Deployment

## Perspectives

Agree



94%

We must revise our development program to attract & retain talent.

Our talent development initiatives align with the changing environment.



46%

Disagree

Agree



61%

Our next generation of transportation leaders will emerge from internal development initiatives

## THE RECIPE

*To attract and retain transportation talent, pursue people with a strong cultural fit, provide competitive compensation, and create work/life balance.*

Today's development priorities include leadership, analytics, planning and forecasting, and transportation strategy, according to the participants. Looking to 2030, these four topics will remain at the forefront, although analytics is the L-2030 participants' top talent development need.

When the L-2030 participants do engage in talent development initiatives, their coverage focuses on transportation fundamentals, process improvement, strategy, and planning. Looking forward to 2030, transportation process improvement will receive greater training attention, along with analytics, planning, leadership, and strategy. While these topics are drivers of transportation success, they don't align perfectly with the priority areas noted above. Moving forward, it will be important for companies to reduce this gap and provide transportation professionals with a well-rounded development experience.

The L-2030 participants recognize the value of training and development. Over 95 percent of them agree or strongly agree with the statement: *A robust talent development program for transportation management professionals positively impacts company performance.* However, nearly 90 percent of the respondents also indicate that funding talent development on a consistent basis will be a primary challenge in the years ahead. If companies are to sustain internal transportation expertise over the next ten years, then this funding discrepancy must be resolved. Stable, ongoing investment in people is an absolute requirement.

### *Key Takeaways*

With transportation receiving more strategic focus than ever from corporate leaders, the need for top flight talent is vital for success. Highly skilled transportation professionals are needed to deploy process changes and technology tools. Companies need to prioritize and fund future transportation talent initiatives to maintain their transportation expertise. That means building a comprehensive program to identify qualified people, hire top candidates, and develop their capabilities. Doing so will boost retention and build bench strength for the transportation challenges that lie ahead.

## Technology: Deploying Transformative Tools

*“Replacing our end-of-life technology is on my radar. It’s time to embrace some of the newer technologies out there. My grand idea is to move us to a cloud-based TMS.”*

Finding a level of equilibrium between the oft-conflicting goals of satisfying customers and keeping transportation costs in check is a difficult pursuit. The situation is even more challenging when transportation professionals do not have tools to maintain end-to-end visibility, optimize flows, and minimize disruptions. Manual efforts are futile and relying on Excel tools or first-generation transportation management systems (TMS) provide only limited relief.

What’s needed is a strong technology system to support transportation planning and operations. Looming concerns with controlling outsourced transportation functions and finding key talent further highlight the need for advanced technology. However, the explosion of technology options and grandiose promises of solutions providers complicate the selection process. Companies must adopt tools that provide near-term ROI. Just as important, they must keep a keen eye on the future and strategically pursue the game-changing capabilities of emerging technologies.

Based on the essential role of technology in fostering transportation excellence, we investigated how the L-2030 participants are deploying information generation tools. The discussion and graphics analyze their current use of TMS, their perceptions regarding the promise of emerging tools, and the risks associated with technology investment.

### *The Go-To Application*

Among transportation technology, TMS has been shippers’ tool of choice with its suite of planning, execution, and control applications. Well-articulated promises of TMS are greater efficiency, cash flow improvement, and enhanced customer service. Despite the potential, adoption is still fragmented. One leader admitted: *“We are moving toward a TMS managed solution, but today the biggest piece of the work is done by manual monitoring and follow up.”*

## THE PROBLEM

*“With billions of transactions each year, it’s very hard to go to different systems for a complete picture of what’s happening across the supply chain.”*



## THE NEED

*“I’m looking for more integrated visibility, so we can better detect problems before they occur and take action more quickly.”*

Among TMS capabilities, the carrier selection, cost analysis, performance measurement, and visibility modules have been widely adopted by L-2030 participants with use hovering near 70 percent. Applications like labor planning, event management, and requirements forecasting have been more tepidly embraced. Not surprisingly, there has been limited or no adoption of newer analytics applications to date.

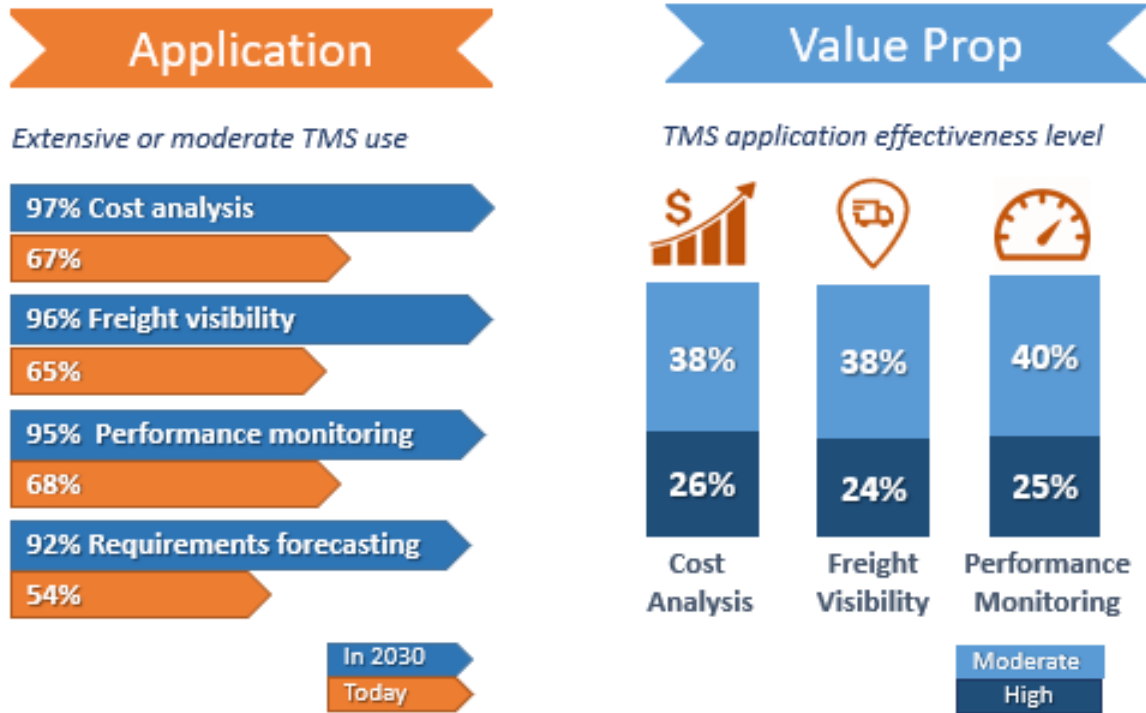
When used, the TMS are not achieving rave reviews from the L-2030 respondents. The cost analysis and performance management tools achieved “highly effective” ratings from just over a quarter of the respondents. Most TMS tools fell somewhere between moderately and minimally effective in the respondents’ ratings. Despite their promise for greater decision-making support, newer analytics applications have not yet won over the respondents. More than half indicate that predictive and prescriptive tools for transportation management are minimally effective or not effective.

The outlook is strong for TMS technology. Companies understand that transportation technology is ever evolving and future TMS solutions must address growing supply chain complexity and escalating customer service requirements. In anticipation of these improvements, the L-2030 respondents intend to expand their use of all TMS capabilities. Our crystal ball suggests that cost analysis, performance measurement and visibility applications will continue to be “must-haves” to remain competitive over the next decade.

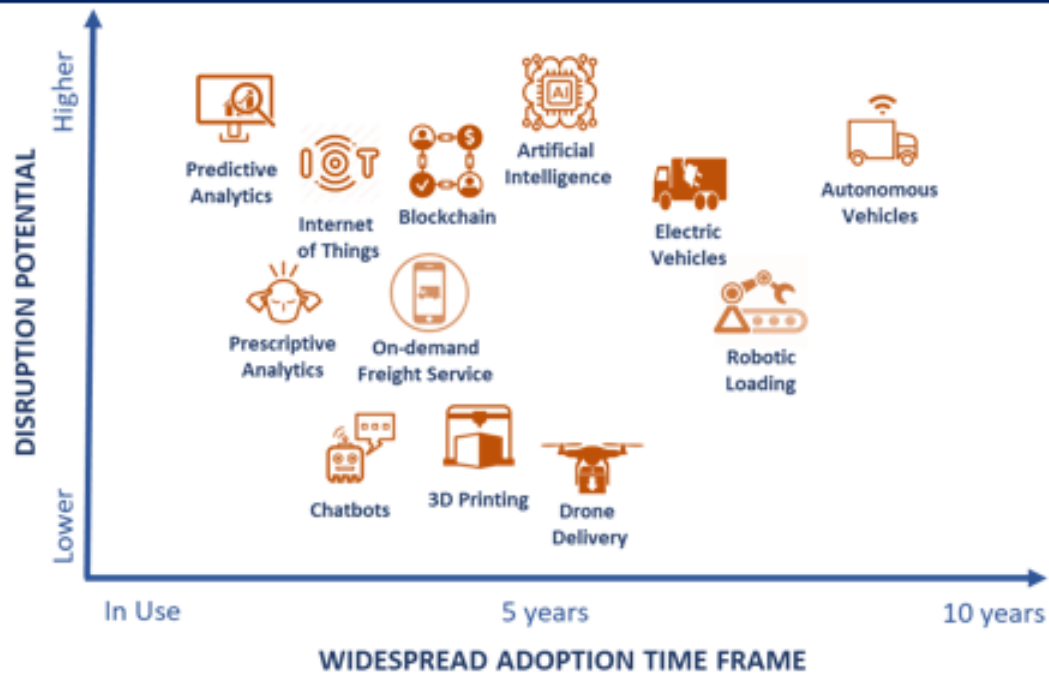
An important area of future TMS innovation adoption will be analytics capabilities. The ability to capture relationships across datasets, create calculated judgments about future scenarios, and determine courses of action will be a defining characteristic in future TMS. An executive noted: *“We are contemplating the introduction of algorithmic decision-making in our process to get away from planners being involved in every decision.”*

The L-2030 participants view these analytics capabilities as must haves to keep pace with the competition in the future. One transportation leader explained: *“We know a lot of other companies are moving into that space, so we’re trying to go in that direction.”*

# Technology Requirements



## Next-Generation Tools



## THE INTENT

*“We need technology to provide indicators that will make us more nimble in changing our supply chain strategy.”*

### *Emerging Technology: Disruptor or Distractor?*

The media is replete with stories of game-changing technologies that promise to upend transportation operations and reshape business models. How much companies will truly gain compared to the hype is up for debate. We asked the L-2030 participants to put many of these emerging technologies under the microscope in terms of their disruptive potential, adoption time frame, and expected benefits.

Most of the technologies analyzed will present a reasonable opportunity for disruption and performance improvement, most often greater cost efficiency. Among the immediate or near-term horizon opportunities, advanced analytics capabilities and the internet of things (IoT) hold the most potential, according to the survey results.

IoT, in particular, has application across the transportation landscape and it is largely linked to improvements in service quality. IoT sensors support real-time location and condition status of in-transit inventory and geo-fencing capabilities. The technology can send alerts when a truck is nearing its destination, capture traffic data to optimize routes, and automatically track government reporting information.

Another near-term opportunity exists with blockchain technology. While not fully understood by the L-2030 participants, interest is high in learning how it can be best leveraged. Although blockchain initially focused on financial transactions, the L-2030 participants view the technology as having the potential to create visibility, while improving service quality and cost efficiency. A transportation leader explained his organization’s interest: *“It is mostly about the non-financials. Traceability of the chain of custody, inventory visibility, and real-time updates are the bigger bets for us.”*

Another high potential tool is artificial intelligence (AI) and machine learning. More than 80 percent of the L-2030 respondents indicate that it has a high or moderate potential to disrupt transportation – in a good way. Cost efficiency and labor productivity are the key improvement prospects, though adoption is 3 to 5 years away for most companies.

Autonomous trucks, the emerging technology with extensive hype and an anticipated adoption window of more than 10 years, also generates the most dissent among the L-2030 participants. It is hailed by 22 percent of the respondents as the technology that will have the greatest impact on their transportation operations. Yet, another 25 percent of the respondents view the technology as having low or no disruption potential. One focus group participant went so far as to say, *"I have low expectations for driverless vehicles, particularly with longer haul transport."*

The technology deemed more of a distractor than a true disruptor is drone delivery. Nearly twice as many L-2030 participants deemed it a low or no potential technology as those who consider it a high potential tool. While small package carriers like DHL and UPS are investing in drone technology, the technology may be best suited to deliveries in highly remote geographic areas or life-critical situations. Other technologies with less convincing argument for transportation implementation include 3D printing and virtual assistants (chatbots). Their narrow applications to the industry will likely limit their disruptive impact.

### *Promise and Peril*

As with any strategic initiative, moving toward greater use of technology can be the boon or bane of the transportation organization. Transportation professionals must approach these opportunities with eyes wide open and attention to detail. Technology implementation should not be delegated and forgotten.

Regardless of the specific technology chosen and its potential disruptive impact, L-2030 participants largely believe that emerging technologies will drive operational gains. In addition, most participants have a clear vision of success, though more than a third of the respondents do not have a clear picture of future benefits.

One area of uncertainty is money. The L-2030 respondents overwhelmingly are concerned about insufficient capital to invest in emerging technology. A lack of investment will slow adoption rates and limit transportation innovation.

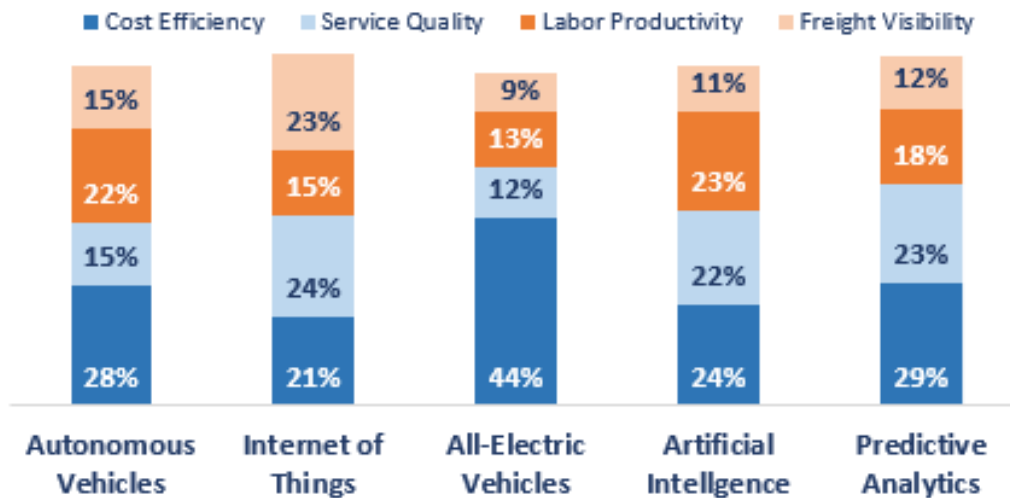
## THE END STATE

*"I'm looking for more integrated visibility. End to end – all the way from production in China to into the customers facility."*

# Emerging Technology

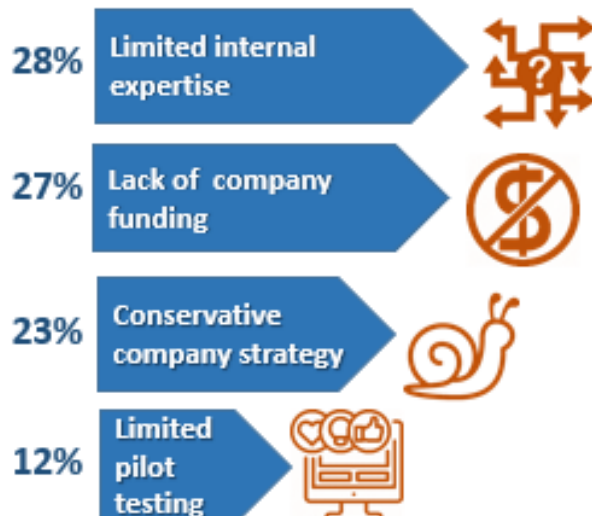
## Value Proposition

*By 2030, most impactful emerging technologies and their anticipated improvements*



## Challenges

*Largest barrier to emerging tech adoption*



## Perspectives

**Agree** 87% Emerging tech will have a major impact on our transportation operations.

We have adequate funding to support technology initiatives. **Disagree** 61%

**Agree** 65% We have a strong vision of own emerging tech will benefit our operations.

While technology adoption costs can be daunting, the implementation challenges are even more unnerving. It was viewed as a major or moderate risk by 88 percent of the L-2030 participant. This is not surprising, given the potential delays, unplanned costs, and lost productivity that accompany many technology adoption initiatives.

There is also worry that heavily hyped technology will not achieve promised benefits. Over 82 percent view this as a significant risk. As one executive noted, *“I’m not completely sold on a lot of the promises of transportation technology and what it delivers post-implementation.”*

To ensure successful adoption, transportation executives must strategically attack the primary barriers to adoption. First and foremost, a lack of internal expertise must be overcome. This will not be easy, given the gaps in talent availability. Few individuals have both the technical and transportation expertise to select and implement high impact tools that support operational needs.

According to the L-2030 participants, poor funding and conservative technology adoption strategies are additional barriers to technology adoption. Both can delay valuable and much needed investment in performance boosting tools. Finally, limited opportunities to pilot test emerging technologies make it difficult to gain executive buy-in.

While daunting, these challenges can be overcome. Taking time to understand the risks and develop mitigation strategies before adopting new technology is essential.

### *Key Takeaways*

Technology is rapidly changing the transportation landscape. Companies with the insight and risk propensity to invest in emerging tools over the next decade will set themselves up to be winners in the Veruca Salt “don’t care how, I want it now” world. Graduating out of the comfort of spreadsheets and manual data manipulation to more automated tools will help transportation professionals achieve transportation decision-making speed with accuracy, end-to-end visibility, cost savings, and labor productivity, all while supporting marketplace demands.

## THE CONCERN

*“I’m hoping that more tools will be developed that can handle all of my transportation data and turn it into information”*

## THE DIRECTION

*“Building a more integrated approach to our overall supply chain – starting with order management all the way through TMS and WMS – is something we’re taking a focused look at.”*

## THE ROAD TO 2030: YOUR ALL-WEATHER ACTION PLAN

Managing the transportation function is akin to living along coastal waters in a perpetual hurricane season. Though the perfect storm may subside, there is always risk of another outburst. You cannot afford to fall back into bad habits and dated strategies when conditions ease. It is critical maintain vigilance and pursue future-focused transportation tactics, technology investments, and talent strategies investments to ensure that your company is prepared for the decade ahead.

Based on the findings from the L-2030 Transportation focus groups and survey, The Perfect Storm webinar seminars, and the NASSTRAC sessions at Edge 2018, we present an all-weather action plan. It will help your company navigate in all driving conditions, stormy or clear, over the next decade.

### *Action Item 1: Establish Coherent, Data-Driven Plans*

Intuition, “gut” decisions, and a narrow, day-to-day focus are not the underpinnings of effective transportation strategies. With priorities shifting from cost reduction to customer service, transportation professionals must adopt systems thinking and align planning with the broader supply chain. In the future, a holistic approach and greater reliance on data to drive strategic plans and decisions will be paramount.

### *Action Item 2: Strengthen Your Key Relationships*

More transportation tasks will be outsourced to service providers in the next 10 years. To gain the most benefit from this strategy, you must develop strategic relationships with top flight carriers, trust them with more responsibility, and communicate effectively on key issues. Put aside those antagonistic “us versus them” tactics. Instead, become a true shipper of choice regardless of current market conditions.

### *Action Item 3: Secure a Seat at the “Adult” Table*

In a world where speed is a priority, transportation must become a mission critical function in the eyes of C-level executives. They must grow to realize that, when afforded the appropriate level of prioritization, transportation will provide a competitive advantage. Going forward, top



executives must include transportation in corporate strategic planning efforts and transportation professionals must embrace spotlight opportunities to demonstrate how their processes will maximize corporate performance.

#### *Action Item 4: Adopt 21<sup>st</sup> Century Technology*

Enough of the Excel rodeo already! Basing key decisions on cobbled-together spreadsheets is a relic of the 20<sup>th</sup> century that puts your company at a distinct disadvantage. Instead, a C-level commitment to strategic future investment in emerging technology will be necessary to compete. Proper deployment of these tools will help you deftly address the challenges of rising customer expectations, operating cost volatility, and capacity availability.

#### *Action Item 5: Show Us the Money (and Respect)*

You get what you pay for! Championship-caliber teams are not built on minor league budgets. The dynamic pace and growing complexity of transportation requires that your company invest in building a strong team of transportation professionals with diverse skills and abilities. To assemble this winning team, companies must commit to recruiting, developing, and properly compensating top transportation talent. Doing so will improve retention rate and create leadership continuity in this essential supply chain process.

The year 2030 will be here before you know it and there are sure to be more storms along the way. Use the insights presented in this L-2030 report to build transportation capabilities that thrive in all weather conditions. Your company's future is depending on it!

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## KUDOS TO ALL

*The Logistics 2030 study would not be possible without the input of engaged transportation professionals. Their expert insights make for a robust report.*

*Thanks to everyone who participated!*



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Brian serves as Auburn University's executive director for the Center for Supply Chain Innovation and Wilson Family Professor. His 25+ years of teaching, research and industry engagement are influenced by his nine years in retail distribution management.

Brian has led multiple research studies and co-authored three books. He serves as CSCMP's Vice Chairman, and on RILA's Supply Chain Steering Committee.

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In the classroom, Beth emphasizes sustainable SCM whereby firms benefit from decision-making that aligns economic, social, and environmental goals.

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## THE L-2030 STUDY PARTNER ORGANIZATIONS

### National Shippers Strategic Transportation



### Council of Supply Chain Management Professionals



### AGiLE Business Media



### TranzAct Technologies Inc.



