



Digital Transformation:

Are We Ready for Change?

29th Annual Trends and Issues in Logistics and Transportation



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Today's Discussion

- Strategy Sets the Stage
- Digital Direction
- Transportation's Transformation
- The Challenges Ahead

Thank You To Our Participants!

289 respondents from **18** industry sectors represented in this study

Transportation spend by study participants:

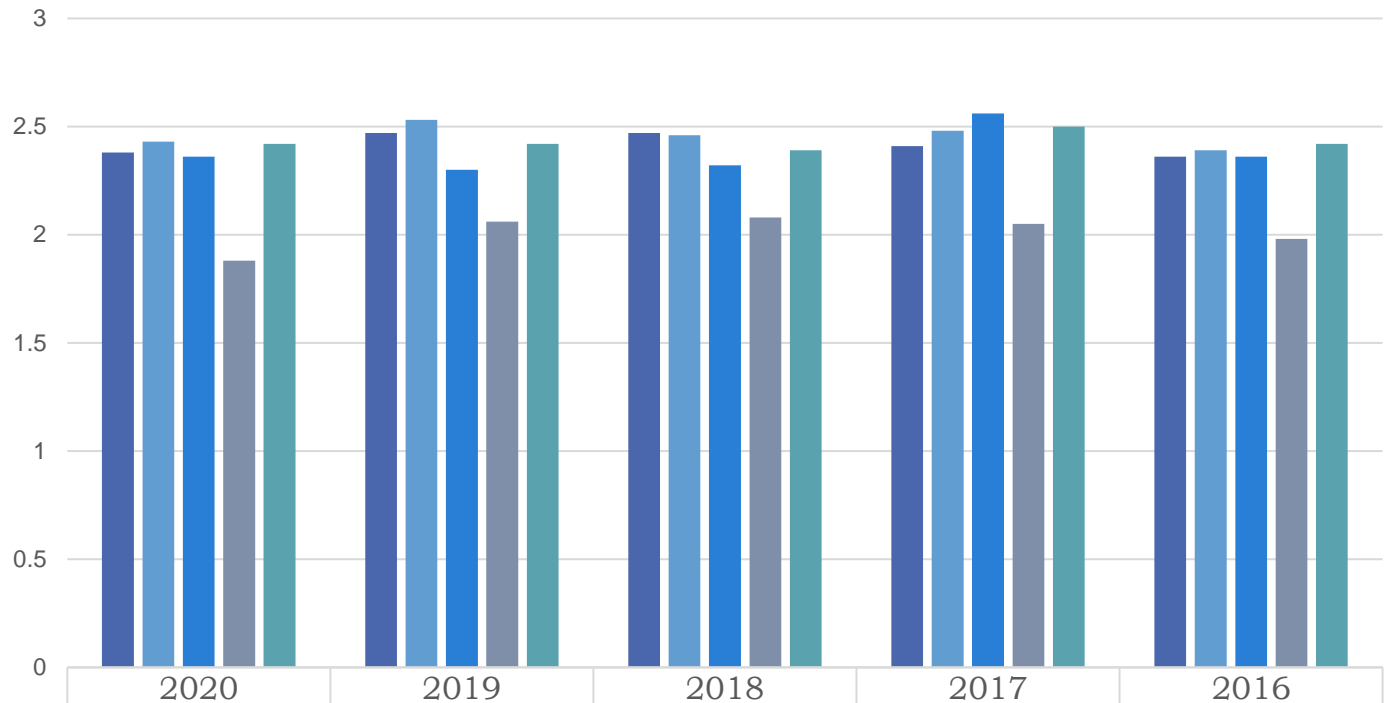
\$24.8 billion



Strategy Sets the Stage



Measuring Up: Performance Comparison to Competitors

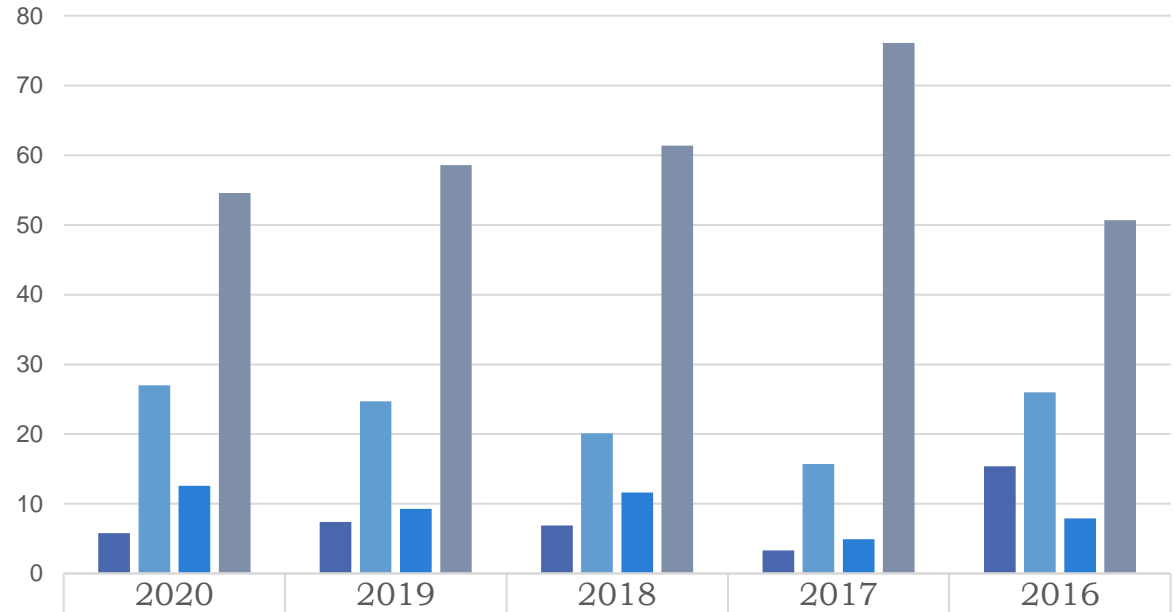


■ Firm Profitability	2.38	2.47	2.47	2.41	2.36
■ Return on Assets	2.43	2.53	2.46	2.48	2.39
■ Competitive Position	2.36	2.3	2.32	2.56	2.36
■ Customer Satisfaction	1.88	2.06	2.08	2.05	1.98
■ Revenue Growth	2.42	2.42	2.39	2.5	2.42

1 = Much Better Than Competitors
5 = Much Worse Than Competitors

A Mix Strategy: All Things To All People

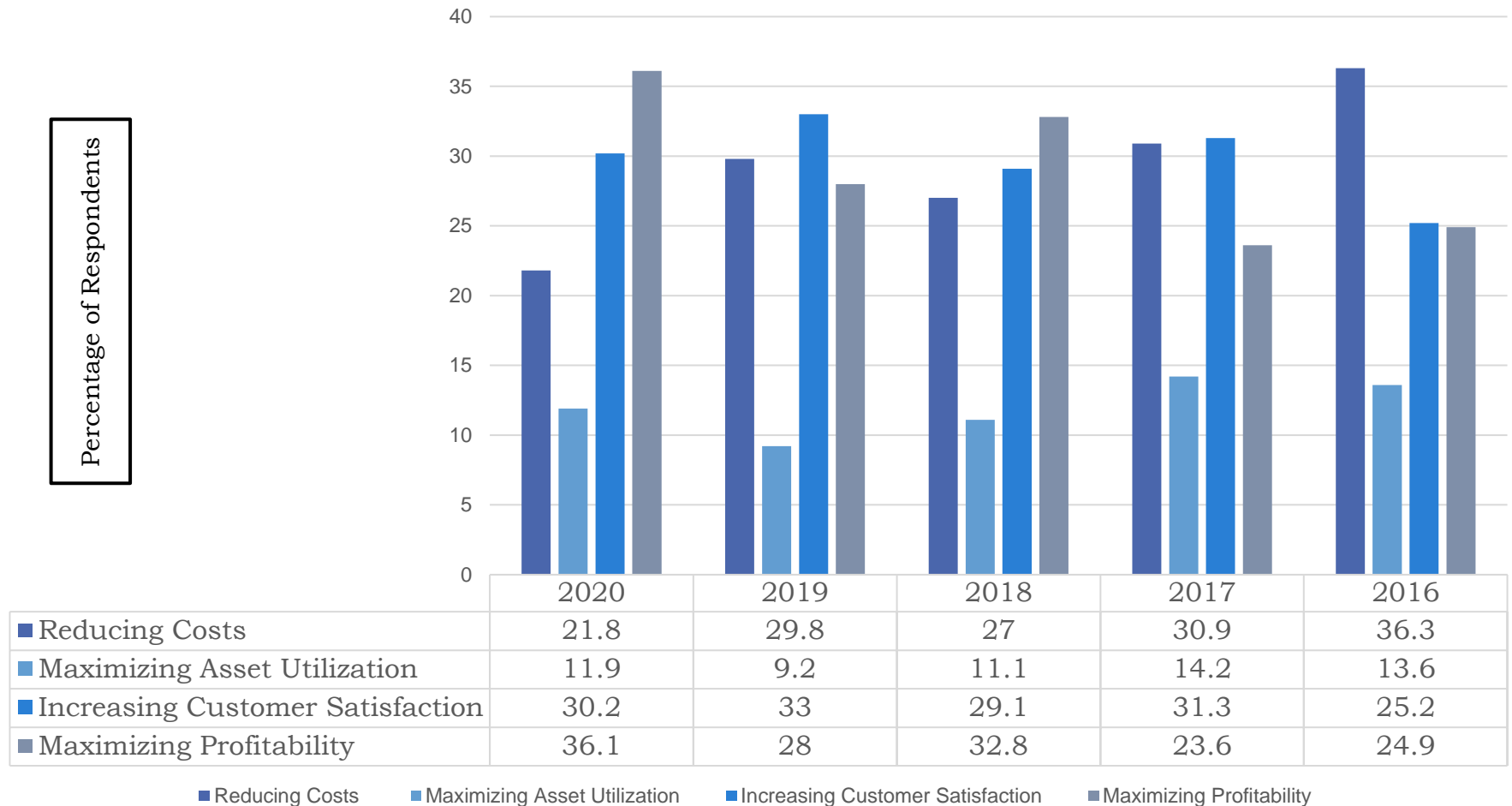
Percentage of Respondents



■ Cost Leadership	5.8	7.4	6.9	3.3	15.4
■ Customer Service	27	24.7	20.1	15.7	26
■ Product / Market Innovation	12.6	9.3	11.6	4.9	7.9
■ Mix: All Things to All People	54.6	58.6	61.4	76.1	50.7

■ Cost Leadership ■ Customer Service ■ Product / Market Innovation ■ Mix: All Things to All People

From Reducing Costs to Maximizing Profitability

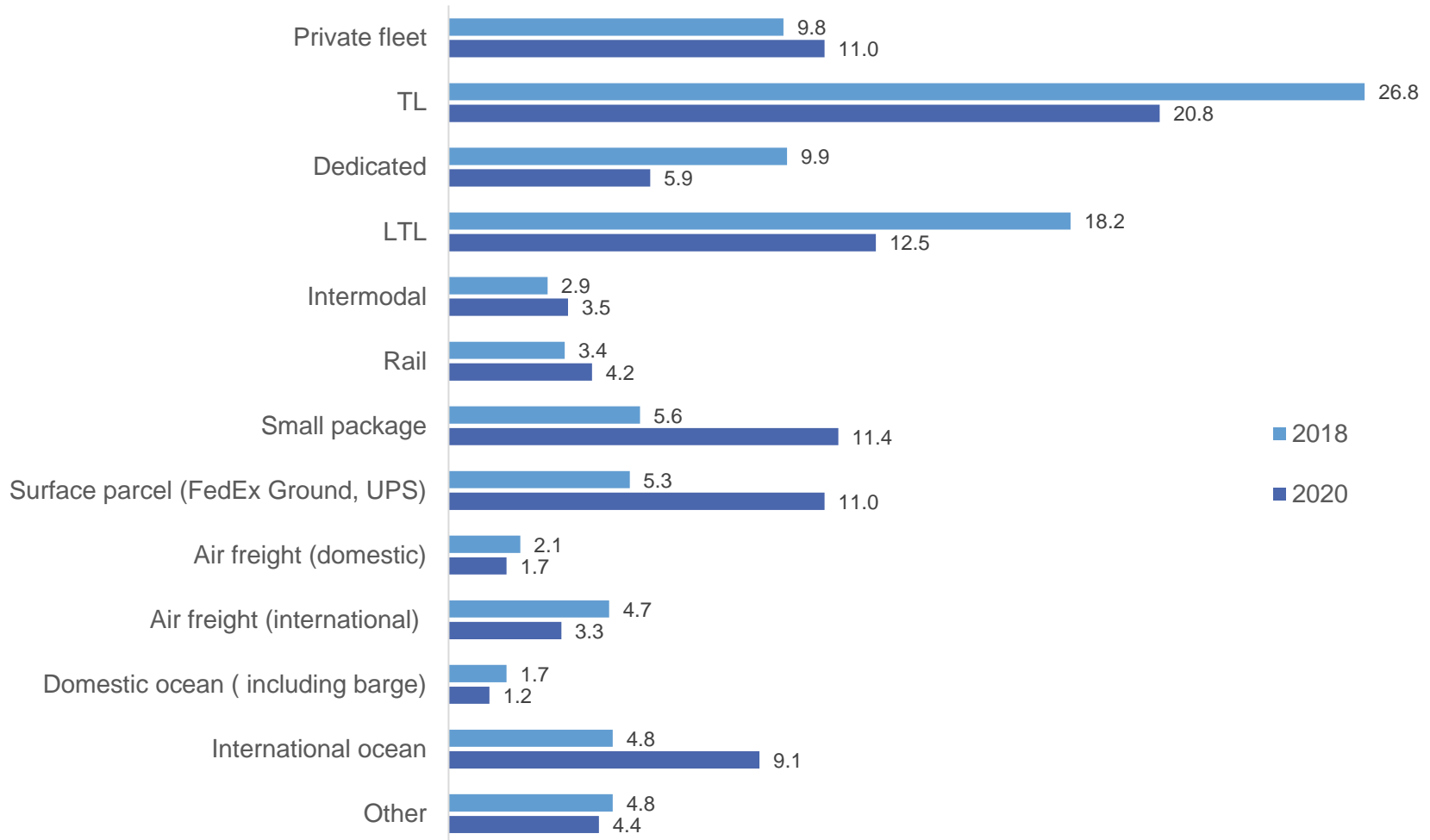


Is Service Aligned with Company's Strategy?

Performance Measure	TL	LTL	Intermodal	Rail	Parcel
Correct invoice (number of correct invoices / total invoices)	91.6	94.0	96.3	95.1	95.4
On time delivery (number of deliveries received on time / total deliveries)	93.2	91.4	91.8	88.3	94.0
Damage (damaged shipments / total shipments)	2.6	3.3	1.2	2.4	1.9



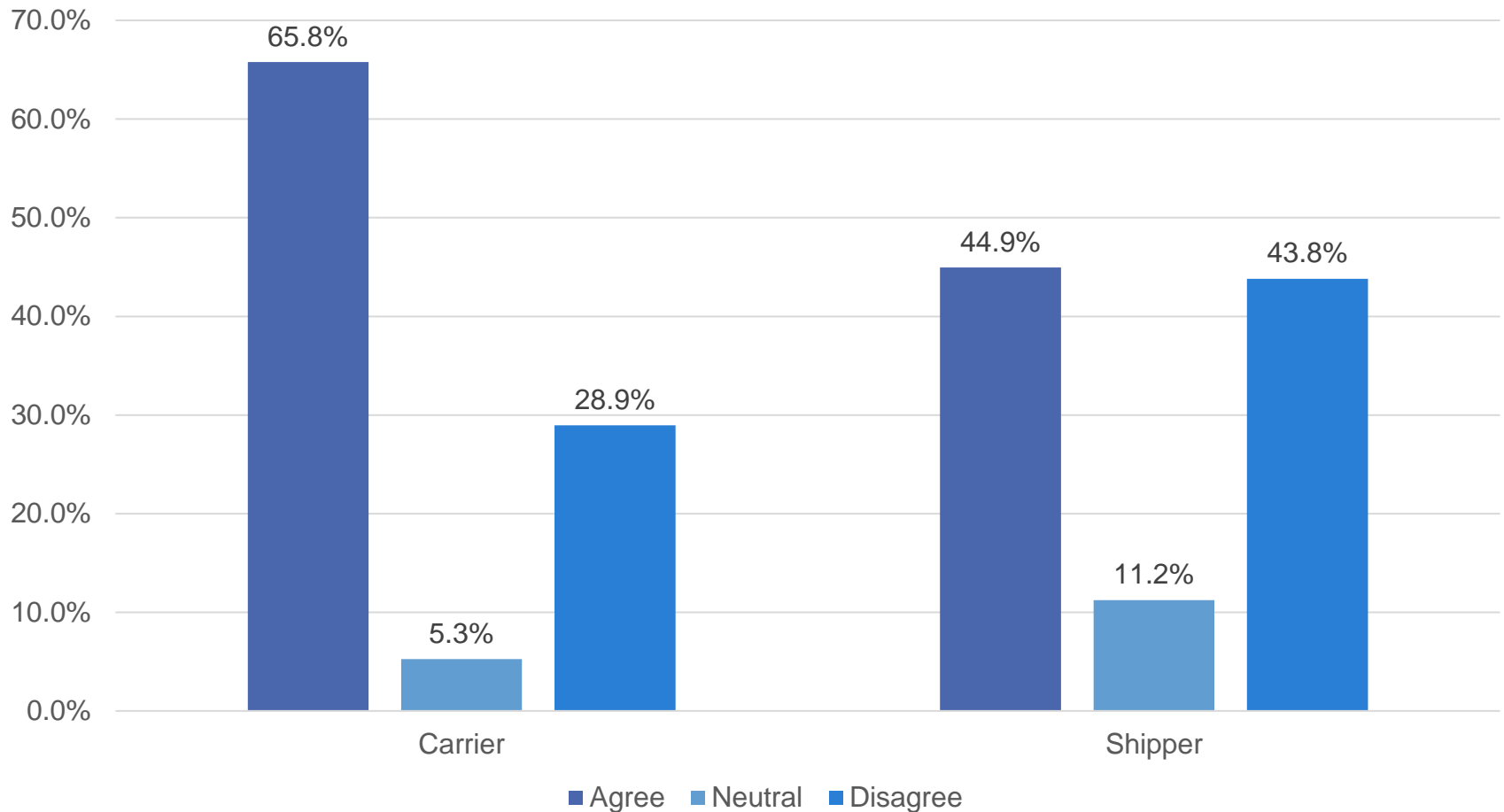
The Impact of Ecommerce on Transportation Spend



Digital Direction



Carriers Believe Current Conditions Will Last



Current conditions are short term and will not have a lasting impact on our operations.

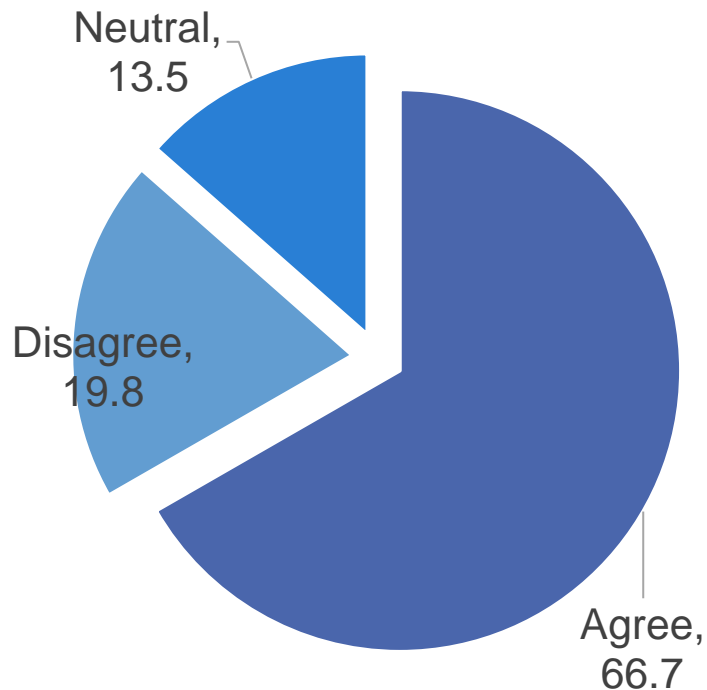
Which Technologies Will Matter the Most?

Technology Rank	2020	2019	2018
Supply chain / logistics visibility	1	NR	NR
Predictive Analytics	2	1	1
Artificial intelligence / cognitive technology	3	4	4
Robotics (e.g. manufacturing, warehouse, process automation, etc.)	4	2	5
Electronic Bill of Lading	5	NR	NR
Internet of things (IoT)	6	6	2
Driverless vehicles	7	NR	NR
Blockchain	8	3	3
Additive manufacturing / 3D printing	9	5	6
Drones	10	NR	NR

The most profound and the very best questions we never dare to ask are: what would your business look like if it was created today? What would it do? How would it do it?”

--Tom Goodwin, author of Digital Darwinism

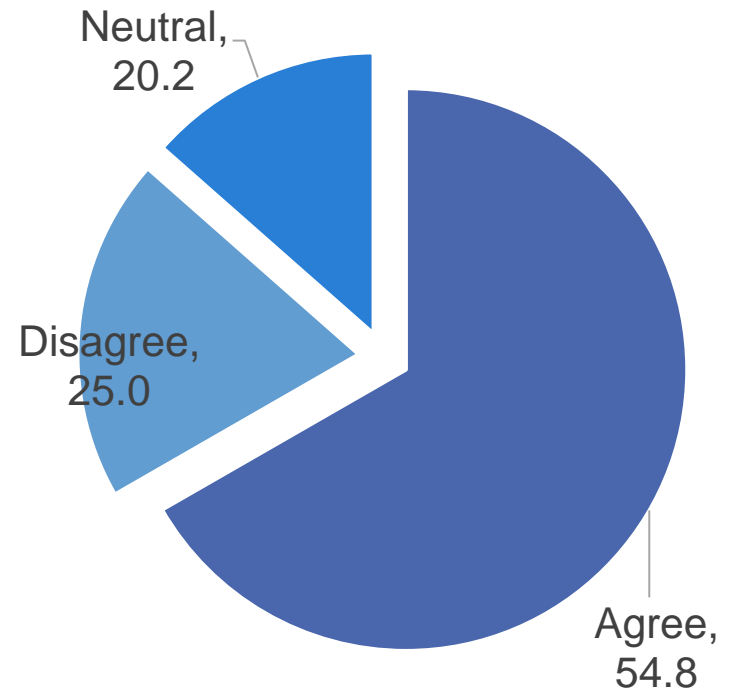
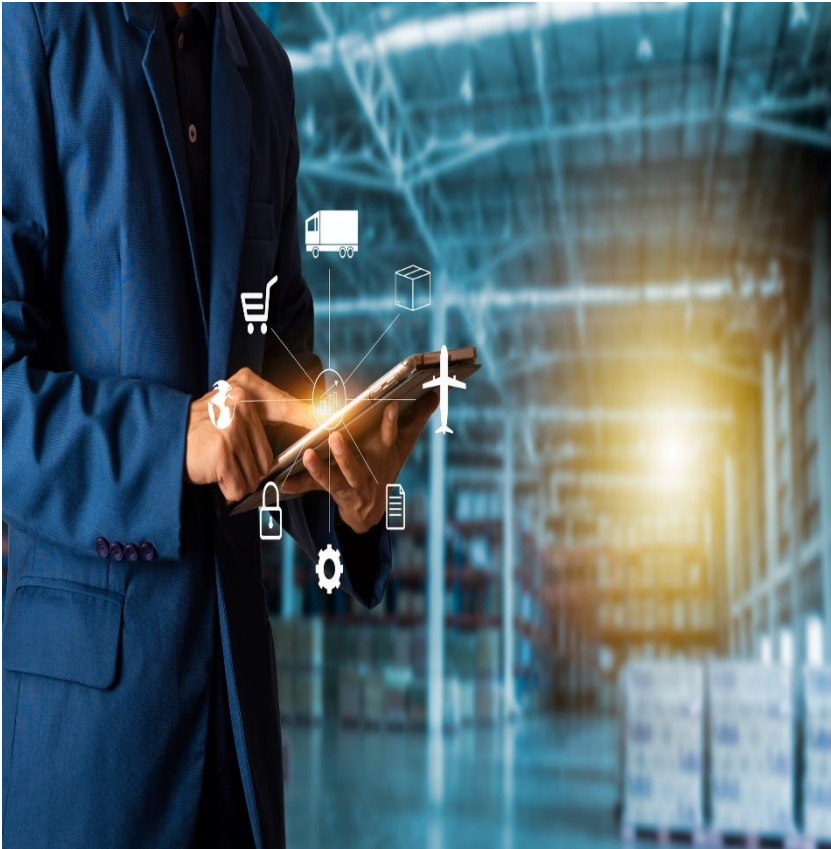
Transportation Will Fundamentally Change During The Next Five Years



Percent of respondents

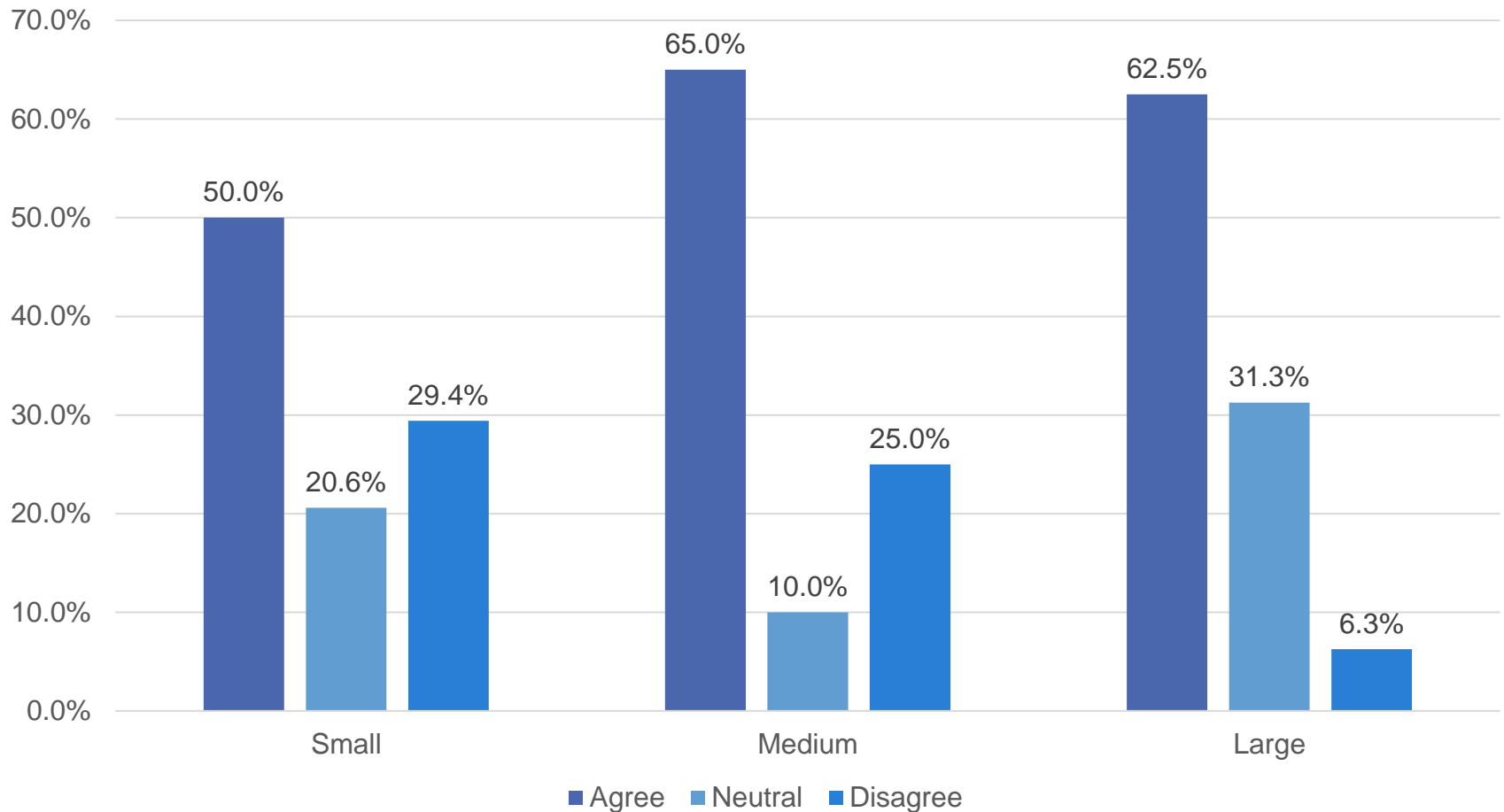


The 'Price' of Competing: Increased Funding of Transportation Technology Initiatives



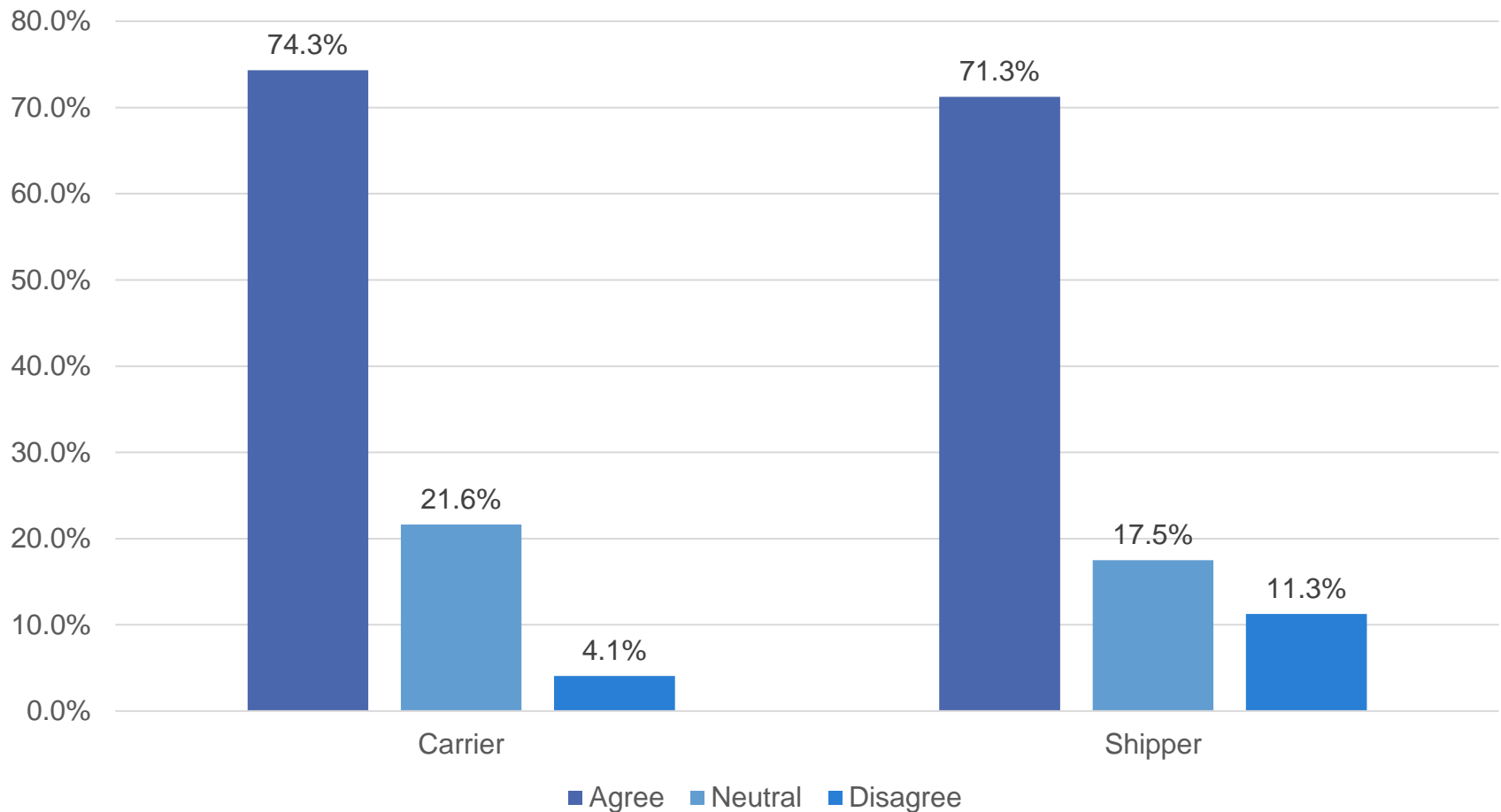
Percent of respondents

Good News For Technology Providers



Funding of transportation technology initiatives is increasing.

The Time Is Right.....

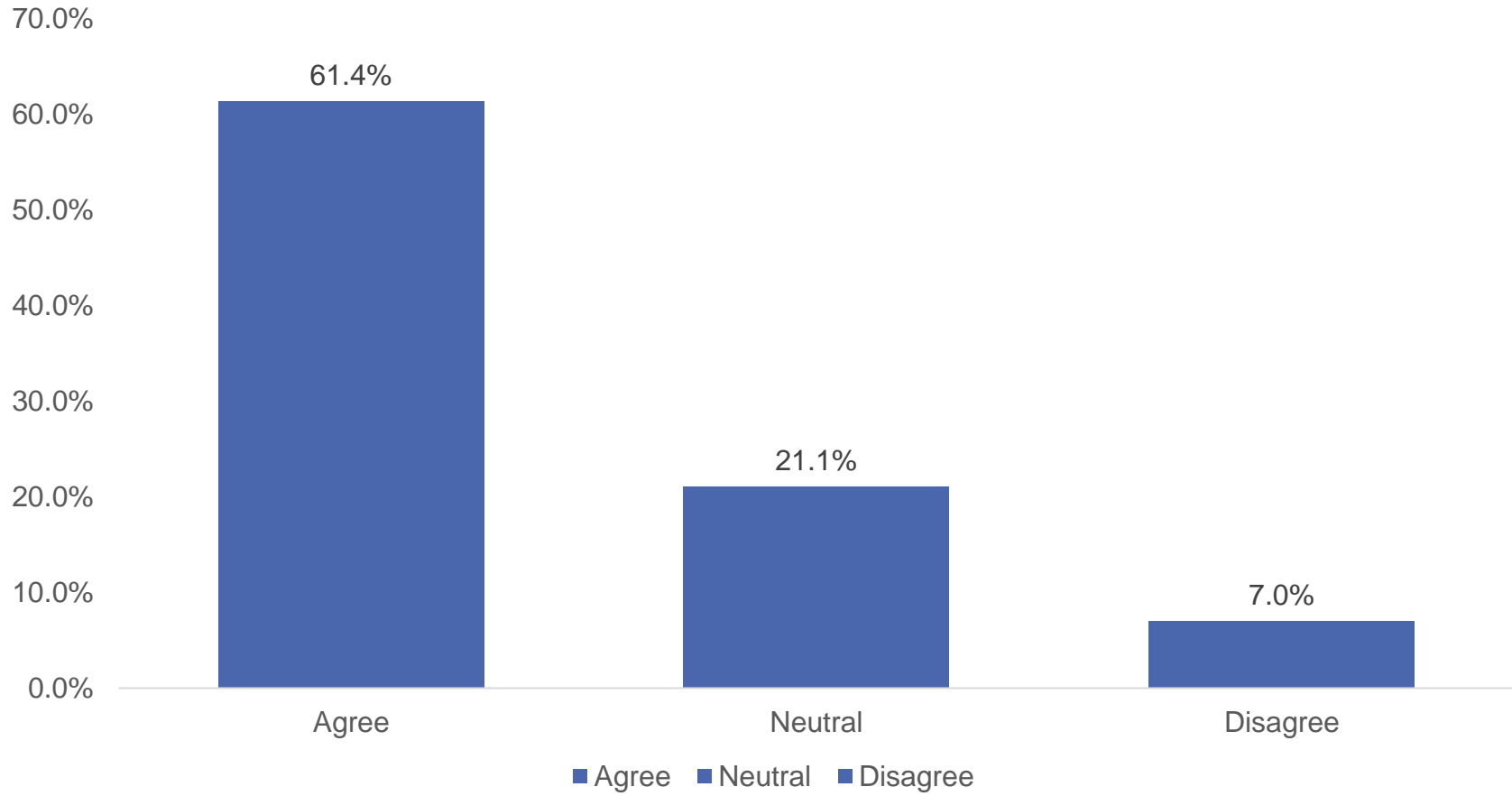


Conditions served as a catalyst for transformational transportation projects

Transportation's Transformation



Phase 1: Strengthening of Core Carrier Program

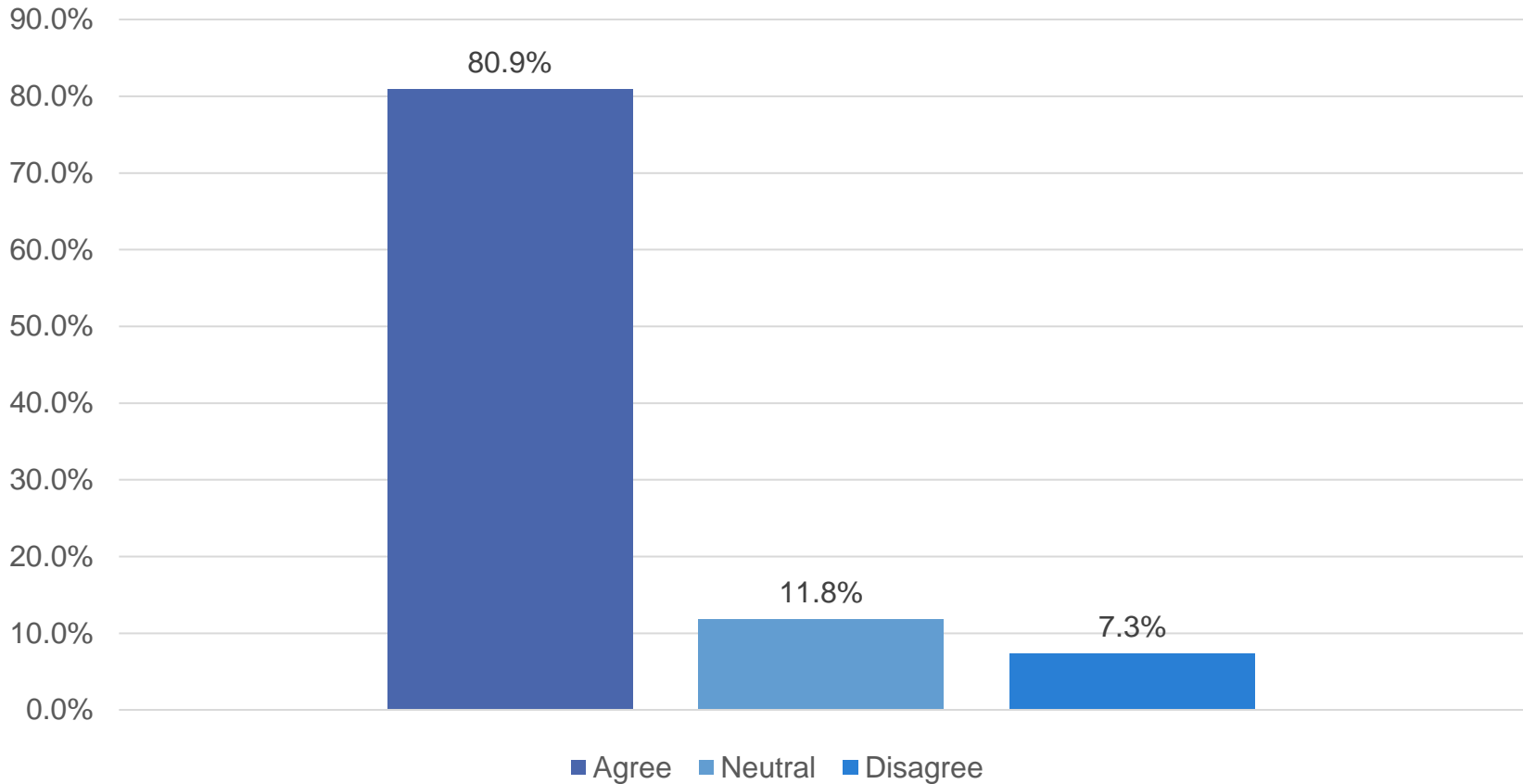


We are strengthening our core carrier program.

Phase 2: Changing Process for Procuring and Managing Truckload Services

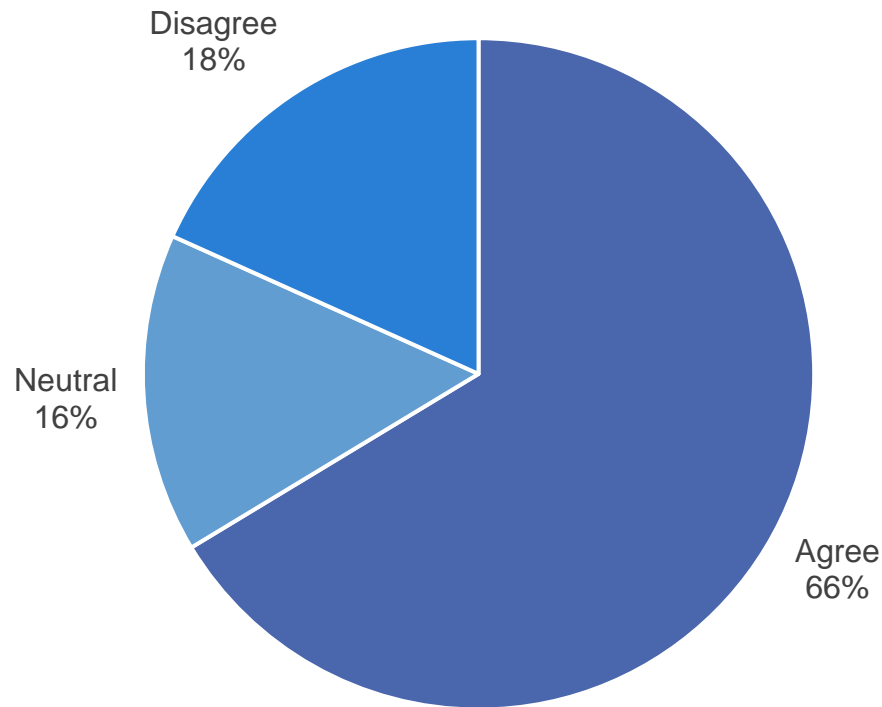
2020						
(percent of respondents)						
	Contracted services/rates with carriers	Truck broker (e.g. CH Robinson)	Truck broker with limited technology	Loadboard (e.g. DAT, Truckstop.com, etc.)	Broadcast tendering	App-based truck brokerage (e.g. Uber Freight, Convoy, Loadsmart)
Expect usage to stop	0.0%	2.7%	6.8%	2.7%	2.1%	3.4%
Usage will decrease	3.3%	8.8%	25.7%	6.8%	4.1%	6.1%
Going down	3.3%	11.5%	32.5%	9.5%	6.2%	9.5%
Expect no change	52.7%	55.1%	54.1%	67.3%	68.3%	57.4%
Usage will start or increase	37.2%	28.6%	10.8%	18.4%	21.4%	29.7%
Usage will significantly increase	6.8%	4.8%	2.7%	4.8%	4.1%	3.4%
Going up	44.0%	33.4%	13.5%	23.2%	25.5%	33.1%
Overall increase in usage	40.7%	21.9%	-19.0%	13.7%	19.3%	23.6%

Phase 3: Creating a Digital Platform



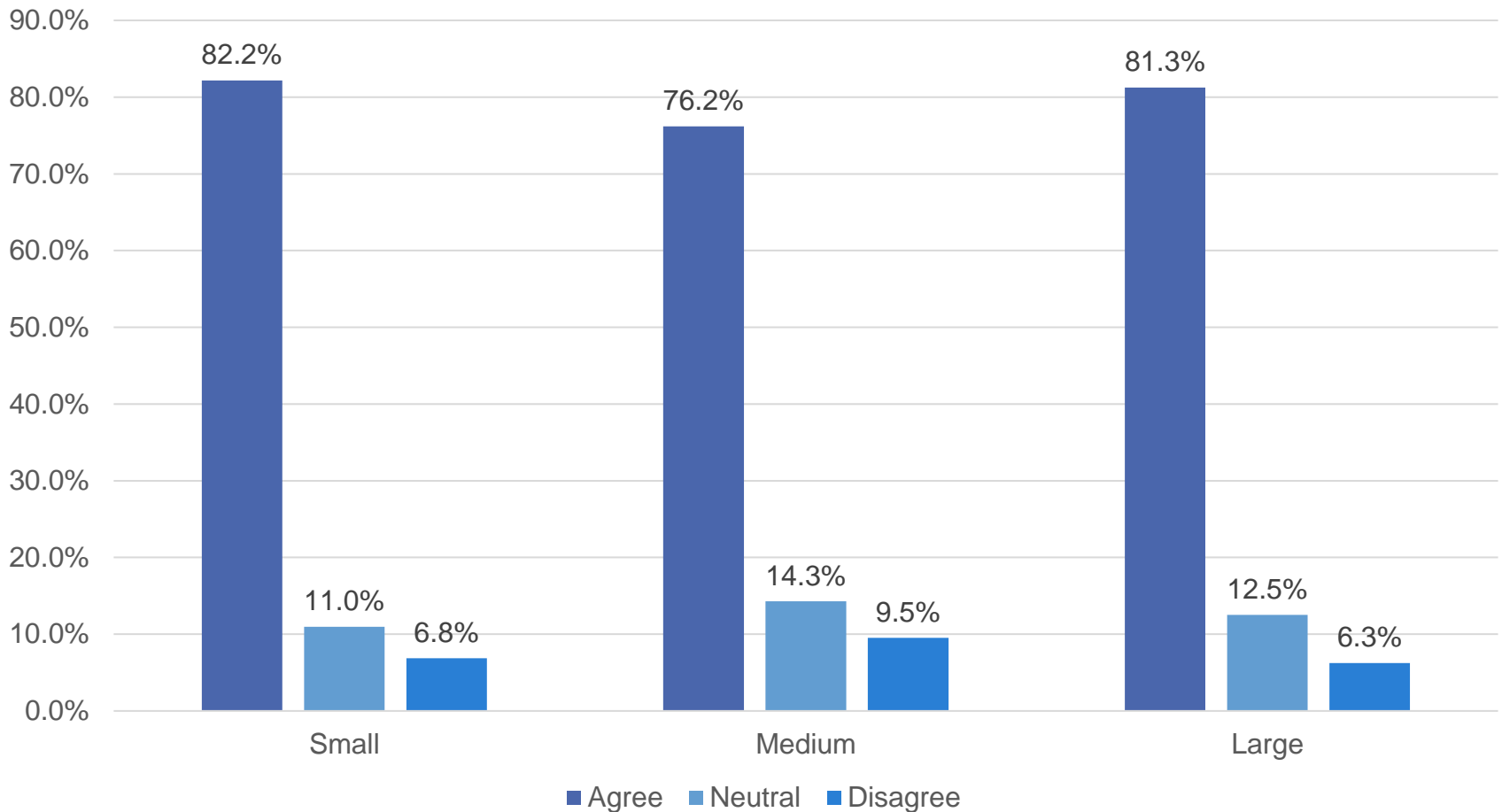
Our means of competing in the future will rely on a robust digital platform.

Phase 4: Developing Innovative Delivery Options



We are exploring automated (e.g. touchless, paperless, etc.) delivery to our customers.

.... Participation is Not Optional



Our means of competing in the future will rely on a robust digital platform.

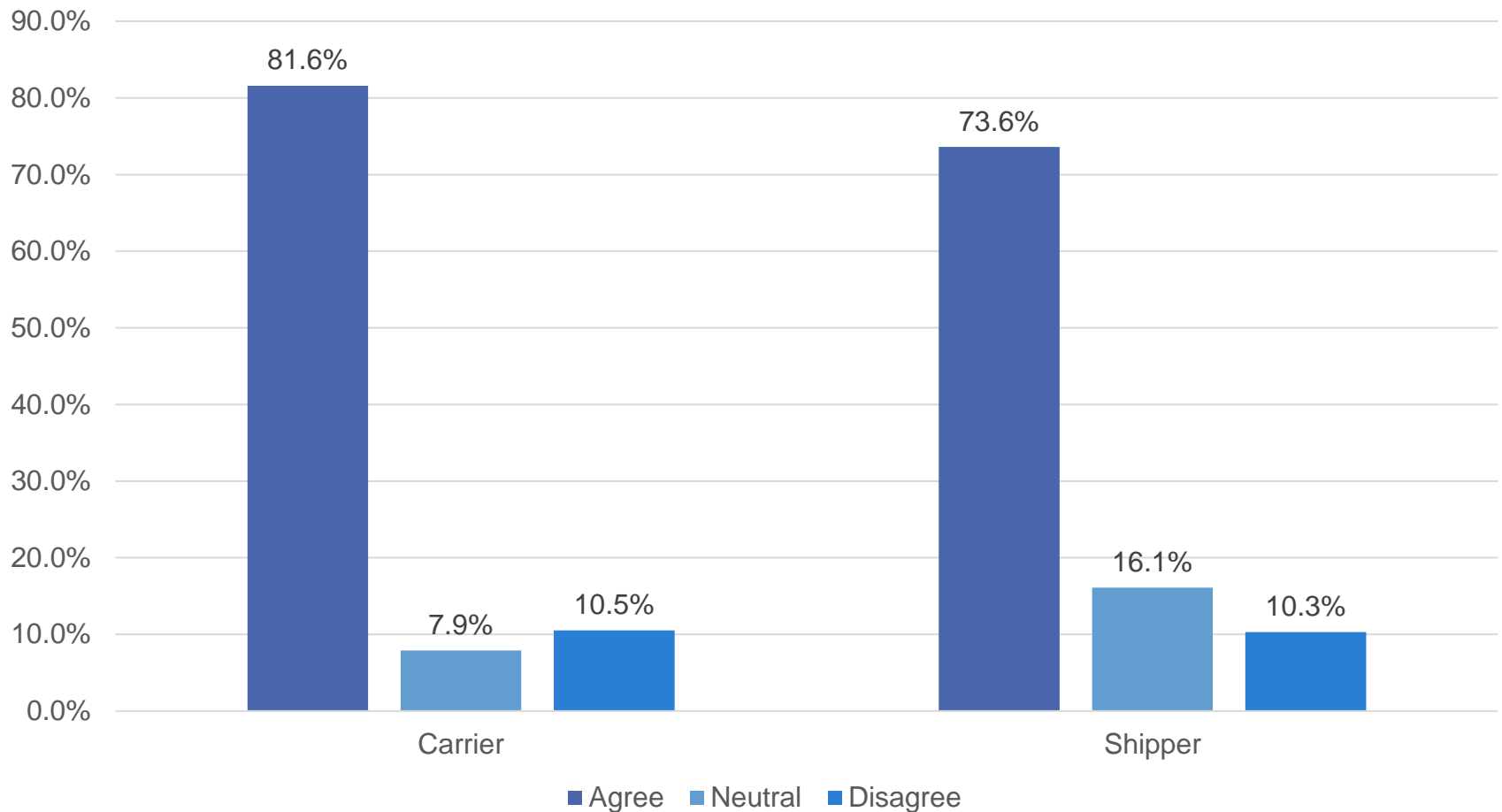
The Challenges Ahead



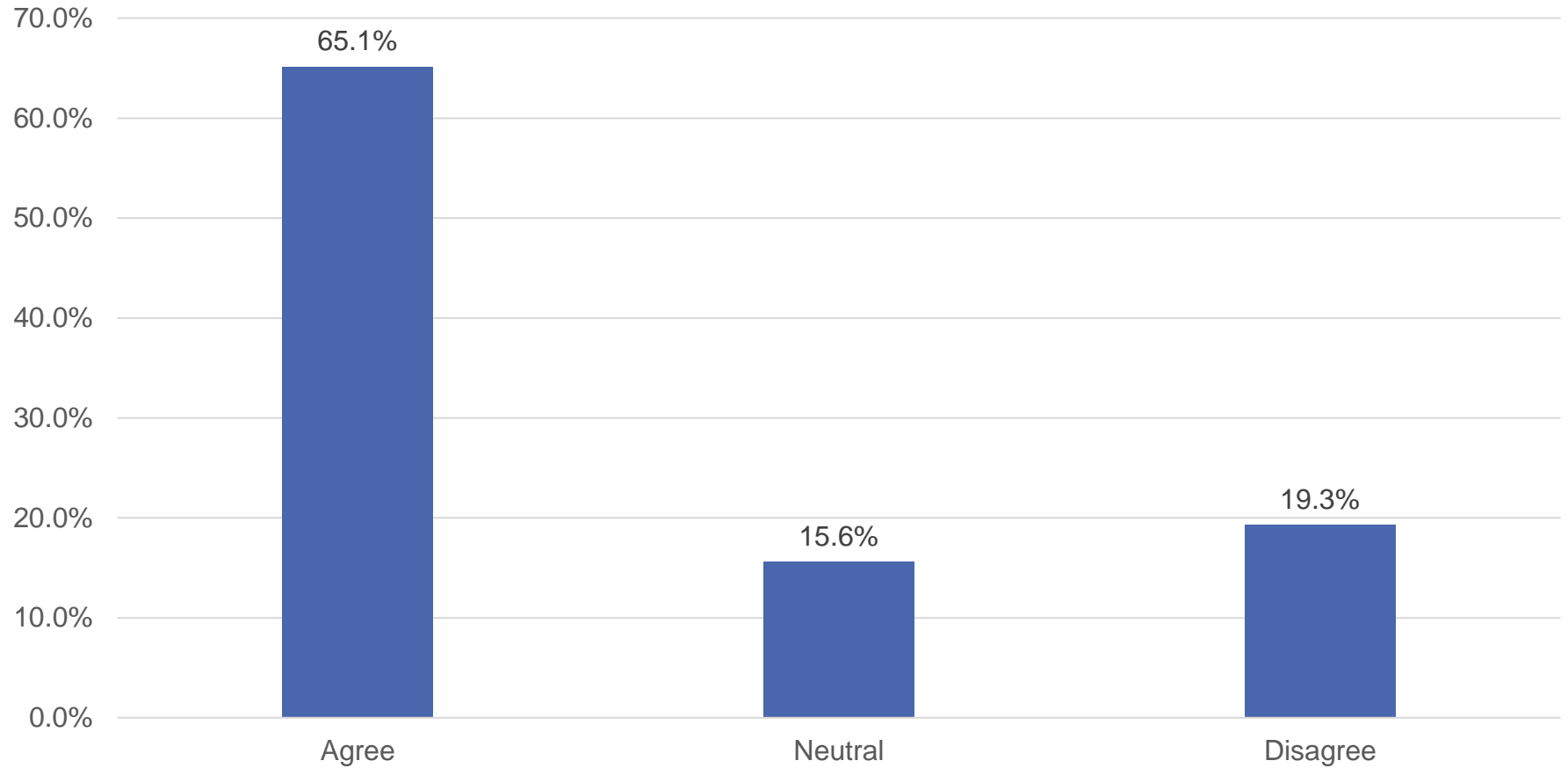
The Changing 7 R's of Logistics

Right	Where We've Been	Where We're Headed
Time	Days	Within hours
Place	DCs	Consumers (stores becoming DCs)
Price	Important	Greater willingness to pay for convenience / speed
Product	Make to transport; narrow margin for damage	Wider scope of products being shipped / produced in transport
Quantity	Pallets	Eaches
Customer	B2B focus	D2C
Condition	Important	Perfect; no tolerance

Real Time Transportation Visibility Is Possible, Practical & Cost Effective....



.....However, Customers Expect More



Digital Darwinism suggests companies were historically designed to evolve and improve over time: But that things are different now. The speed of technological and societal change no longer affords companies the luxury of slow incremental improvements or adaptations. Instead, companies must look forward and dare to ask the hard question: are we willing to change?

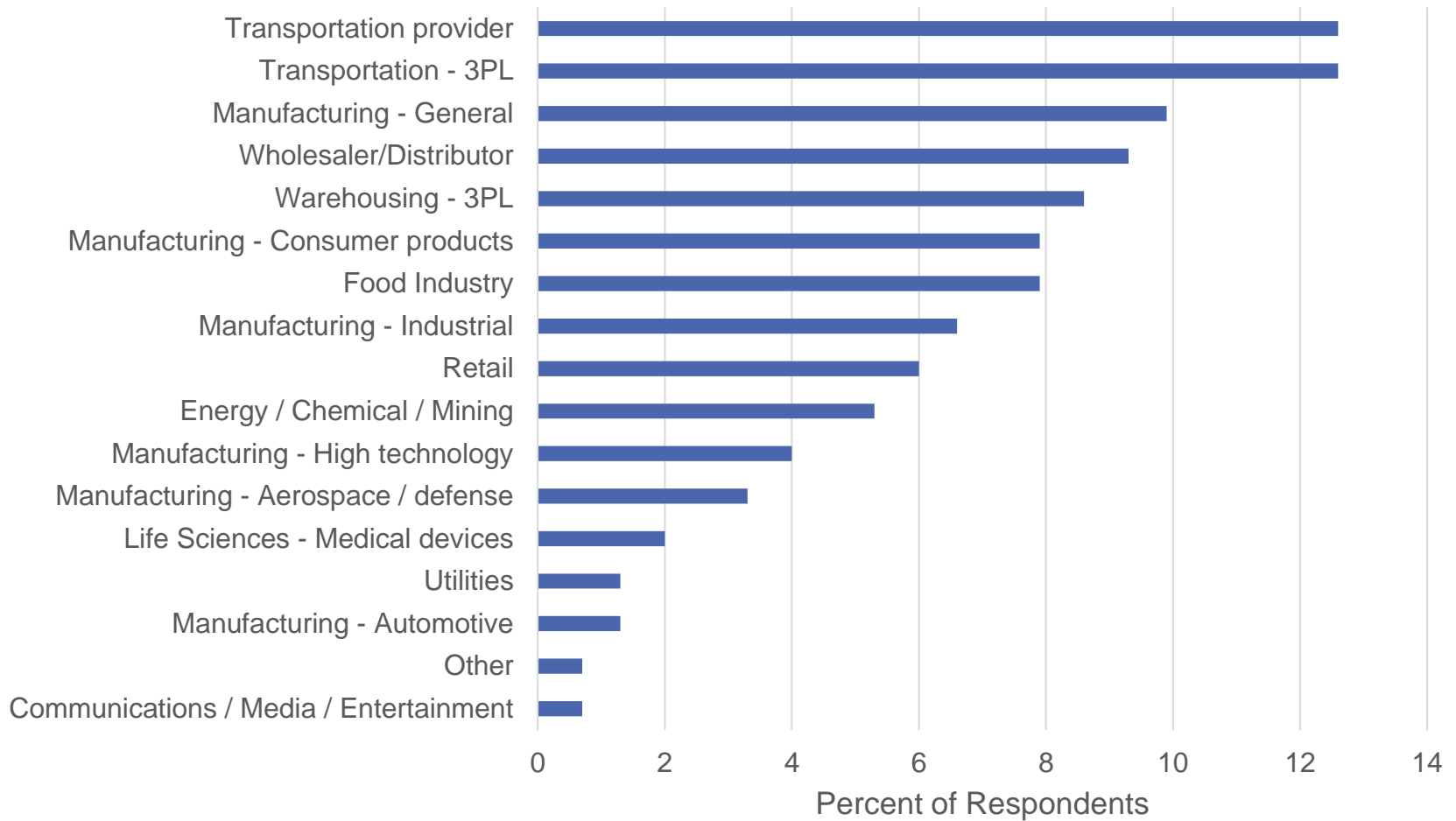
In Closing.....

- For some, change has been slow and it has impacted the adoption of technology
- The interconnectedness of all of the modes, technologies, and people can make any significant change slow to implement
- Change presents an opportunity to gain competitive advantage as a digital frontrunners in the redefinition of transportation

Demographics



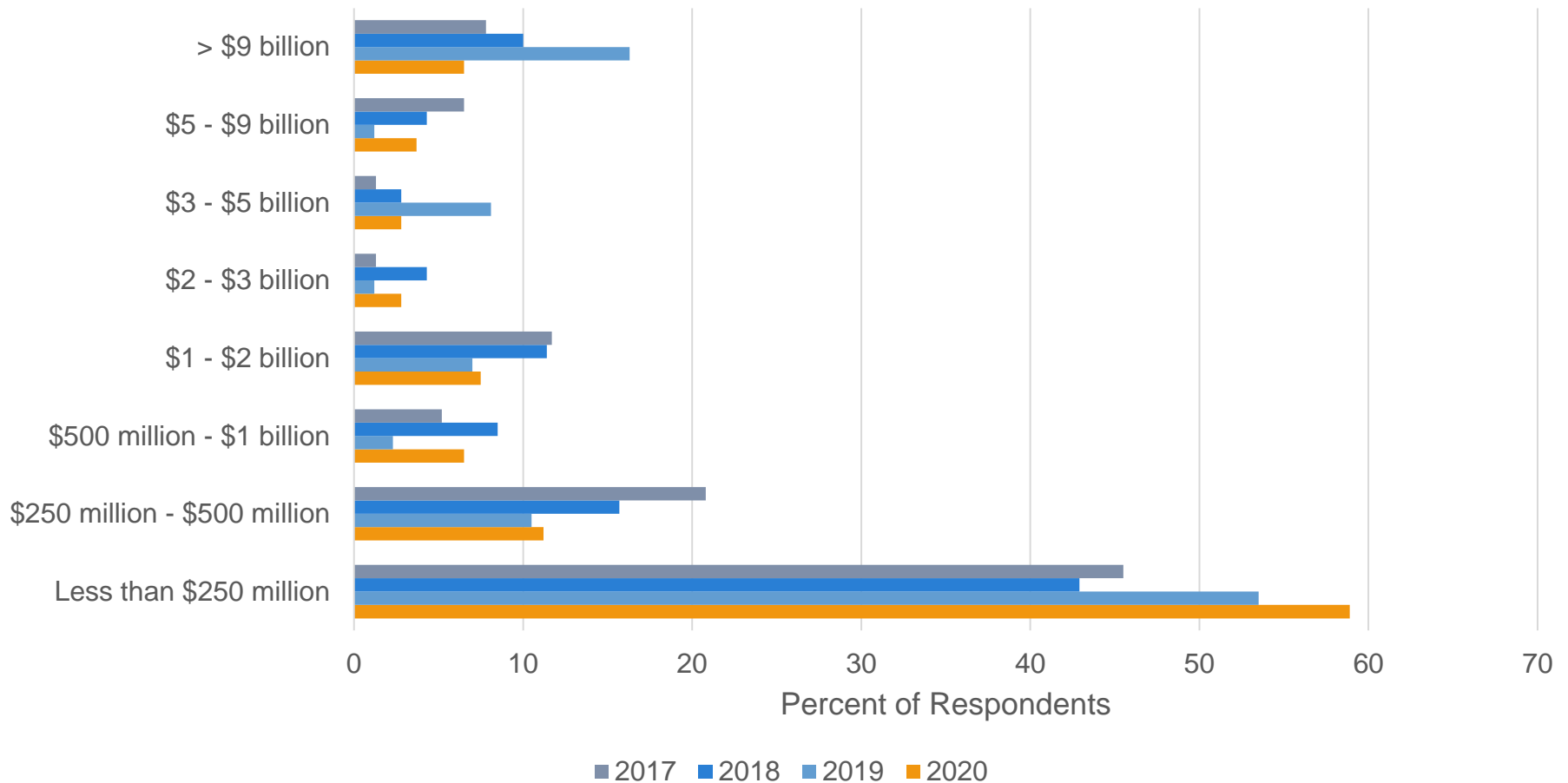
Manufacturers represent the largest group in the study



Primary area of responsibility for respondents

	2020	2019	2018
Domestic logistics	21.4	32.3	30.9
Domestic transportation	24.8	25.4	21.5
Domestic supply chain	25.7	19.1	20.4
International logistics	10.2	7.3	9.9
International transportation	6.8	3.6	13.6
Global supply chain	11.2	12.3	-
	Percent of Respondents		

The Power Of Company Size: Annual Revenue



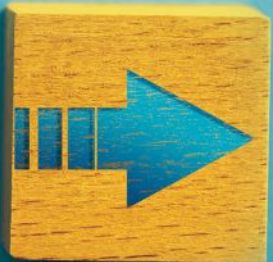
Relative to your largest revenue customer, what is your position in the supply chain?

	2020	2019	2018
Retailer	11.6	13.3	10.4
Distributor / wholesaler	17.4	17.3	16.9
Manufacturer / assembler	25.6	25.5	31.2
Tier 1 supplier	7.4	8.2	14.3
Tier 2 supplier	0.8	0.0	1.3
Tier 3 supplier	0	4.1	0.0
Carrier	15.7	13.3	9.1
3PL (primarily distribution)	21.5	18.4	16.9
	Percent of Respondents		

MASTERS OF LOGISTICS

29th Annual Study of Logistics and Transportation Trends:

Are we ready to change?



While technology is a key part of digital transformation in logistics and transportation, strategy, structure and processes must be aligned accordingly to create value for the company and its supply chain partners.

BY **MARY C. HOLCOMB**, PH.D., PROFESSOR, UNIVERSITY OF TENNESSEE; **CHRISTOPHER A. BOONE**, PH.D., ASSISTANT PROFESSOR, MISSISSIPPI STATE UNIVERSITY; **KARL B. MANRODT**, PH.D., PROFESSOR, GEORGIA COLLEGE AND STATE UNIVERSITY

“The most profound and the very best questions we never dare to ask are: What would your business look like if it was created today? What would it do? How would it do it?”

—Tom Goodwin, author of Digital Darwinism

Digital Darwinism suggests that companies were historically designed to evolve and improve over time, but that things are different now. The speed of technological and societal change no longer affords companies the luxury of slow incremental improvements or adaptations. Instead, companies must look forward and dare to ask the hard question: Are we willing to change?

The “29th Annual Study of Logistics and Transportation Trends” posed these questions to over 290 logistics and transportation professionals to gain added insights into how their organizations are responding to the disruptive pressures of new technology, rising customer expectations, and a global pandemic. The study revealed a number of new insights.

“Digital technologies alone provide little value to an organization.” —G.C. Kane (2014)

While technology is a key part of digital transformation in transportation, strategy, structure and processes must be aligned accordingly to generate new ways to create value for the company and its supply chain partners.

A little more than 54% of the respondents described their strategy as a mix between balancing cost and service objectives (“being all things to all people”). In theory, this policy allows a company to offer a bundle of products or services that are specific to a customer or customer groups.

From a logistics and transportation perspective, differentiated service is a means of creating value. In practice, the mix strategy is often difficult to conceive or operationalize. In order to be effective, the front-office interface with the customer must be fully integrated with the back-office internal support activities and systems. Unfortunately, many companies still struggle with seamless

integration—a key factor in our quest for a digital supply chain.

In the past three years, two competing objectives—increasing customer satisfaction and reducing costs—tended to dominate tactical and operational decisions. However, in 2020, the goal of “maximizing profitability” was the primary objective for approximately 36% of our respondents, an increase of nearly 29% over last year’s data.

In contrast, increasing customer satisfaction and reducing costs both declined, -8.5% and -18.9% respectively. We believe this shift highlights the growing focus on cost to serve and use of technology to gain operational efficiencies while meeting rising customer expectations.

Why is this alignment important? It has a bearing on company performance. The results of our 29th annual study seem to confirm this association. Over the past five years, respondents report their company performance across key measures of profitability, return on assets (ROA), market share, customer satisfaction, and revenue growth have been stagnant as compared to their competitors.

In 2020, firms focused on customer satisfaction reported a significant improvement from the previous years, with ROA and firm profitability also increasing relative to competitors.

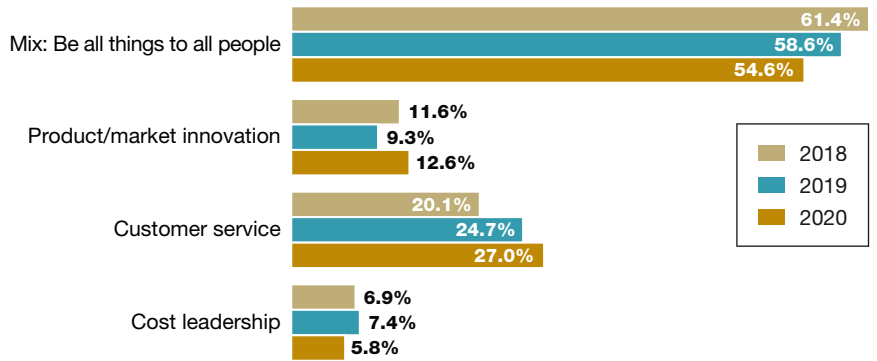
Fundamental service performance is lagging

To achieve the desired performance outcome, it’s not sufficient to only have alignment of strategy with the logistics and transportation objective. The objective must be the driving force behind decisions that are made in day-to-day operations.

One of the structural components of transportation decision-making is how

Balancing cost and service

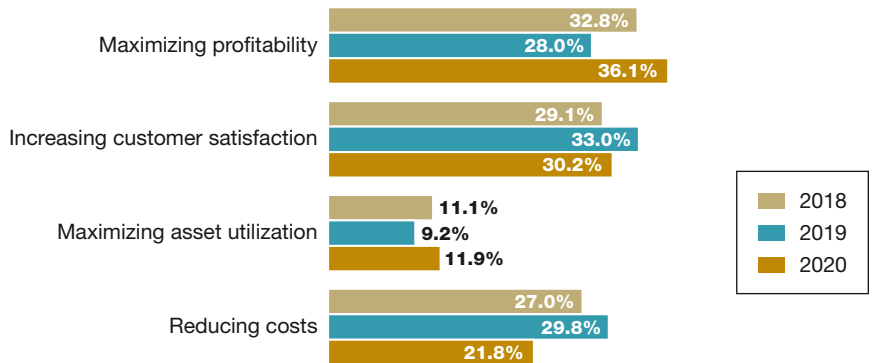
Percent of respondents



Source: 29th Annual Study of Logistics and Transportation Trends

Striving to achieve maximum profitability

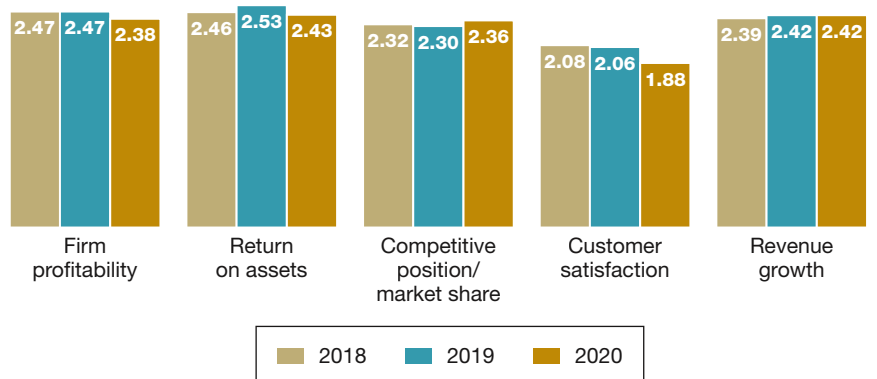
Percent of respondents



Source: 29th Annual Study of Logistics and Transportation Trends

Improving customer satisfaction and firm profitability

Scale: 1 = Much better than competitors; 5 = Much worse than competitors



Source: 29th Annual Study of Logistics and Transportation Trends

to move freight. The double-digit percentage growth in e-commerce market share is reflected in a significant shift in

transportation spend by mode. A comparison of 2018 to 2020 data indicates that small package and surface parcel

have doubled their share of the transportation budget during this time frame. The gain in these modes occurred at the decline of transportation spend for truckload (TL), less than truckload (LTL) and dedicated truck.

Consumer expectations regarding delivery are rapidly changing: Same-day delivery is the fastest growing option for expedited service. In addition, consumers want to know where their shipment is in the fulfillment process and when they can expect to receive it. In fact, a vast majority of consumers expect that they will be able to track their shipments in real time. This level of service places a tremendous amount of pressure on transportation providers and upstream supply chain members to achieve that goal.

Data from the annual study indicate that transportation providers are not meeting expectations for several elements of service including on-time delivery. Parcel, which is a primary mode for next-day and same-day deliveries, reported a 94% on-time delivery rate for 2020.

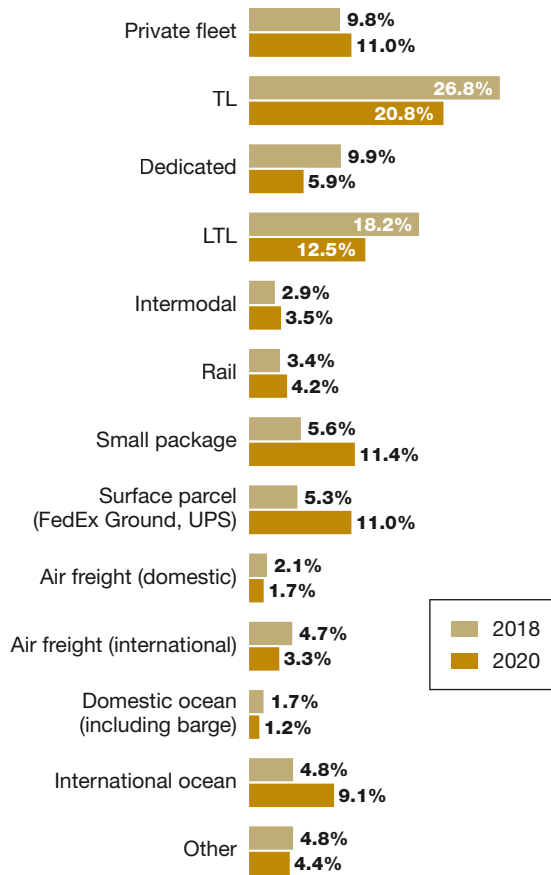
LTL, which also plays a key role in e-commerce freight, posted an on-time delivery score of 91.4%. In global supply chains that run lean on inventory, keeping damage rates low is important. In 2020, LTL recorded the highest level of damage followed by TL and rail. Except for rail, the rate of damage for the five modes—TL, LTL, intermodal, rail and parcel—are the highest reported over the past five years.

Clearly, there's ample opportunity to improve on these service elements that are considered to be fundamental performance measures.

We found that transportation services are being procured by shippers using a variety of methods, from traditional contracts to app-based truck brokerage. In a

The impact of e-commerce on transportation spend

Percent of transportation budget



Source: 29th Annual Study of Logistics and Transportation Trends

business environment where the rate of change and technology adoption is occurring at a pace faster than ever, it's interesting to note that very little change is anticipated in the transportation procurement process.

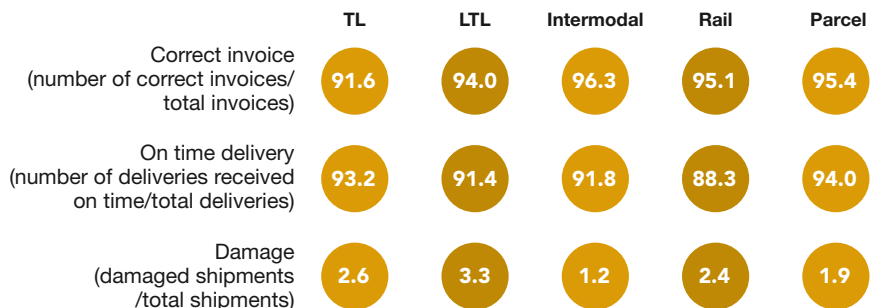
A comparison of 2019 to 2020 data highlights some interesting findings. First, compared to 2019, the majority of respondents expect no changes in how they procure transportation services in 2020.

In fact, respondents were more tied to the *status quo* for all methods except for app-based truck brokerages, which saw a small decline in "expect no change," but a 13% increase in expected growth or usage. Second, all of the methods show continued growth—that is, increased use exceeds usage going down—in all cases but one: brokers with limited technology.

Of all the things that have changed, the need for visibility remains constant. As noted

below, respondents rank visibility as the most important technology for the next three years. For large firms—the Masters—visibility and predictive analytics were both equally ranked as most important, followed by artificial

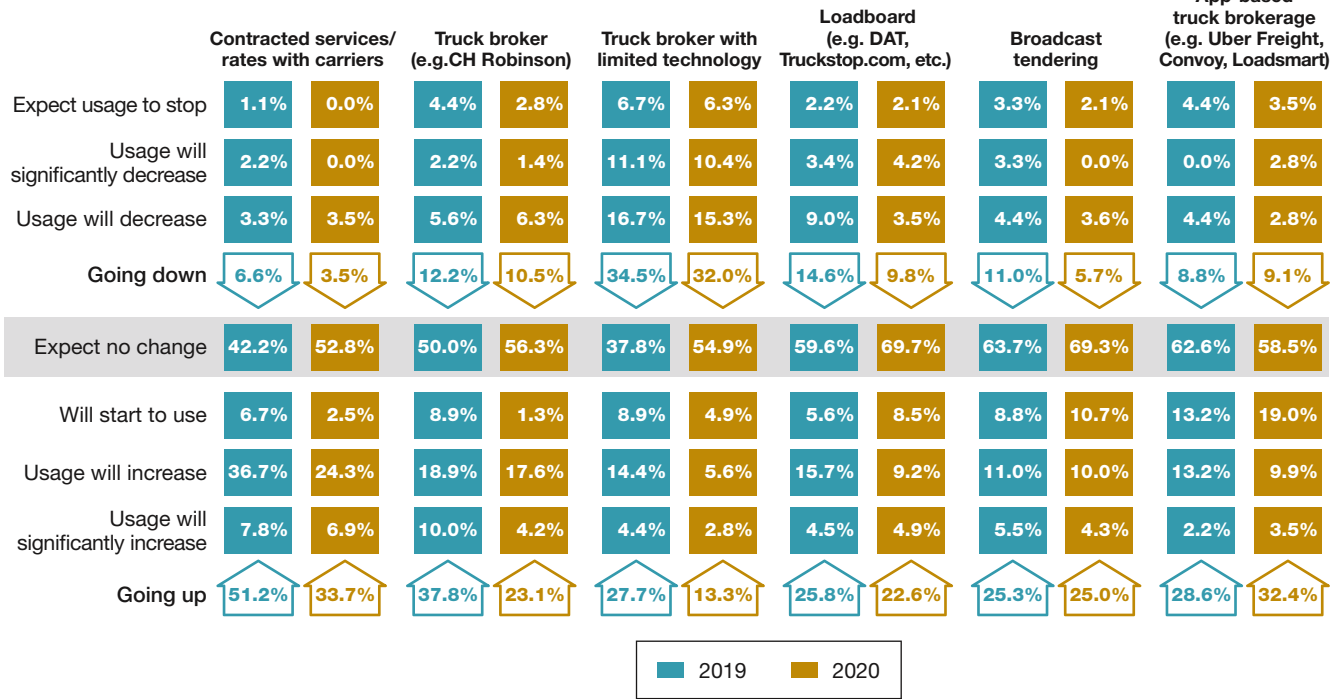
2020 performance by 'best' domestic transportation providers



Source: 29th Annual Study of Logistics and Transportation Trends

Technological method for procuring transportation services

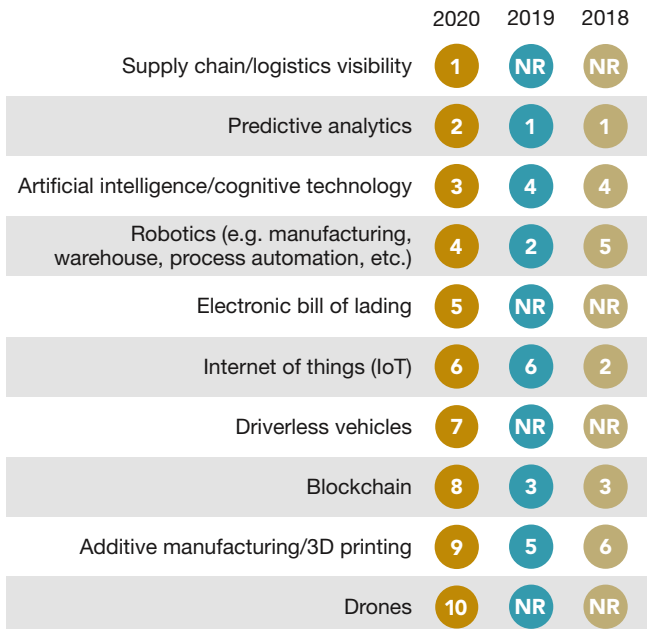
Percent of respondents



Source: 29th Annual Study of Logistics and Transportation Trends

Supply chain visibility and analytics remain critical

Most important technology



Source: 29th Annual Study of Logistics and Transportation Trends

intelligence and cognitive technology.

For small firms (annual revenue less than \$500 million), their third ranked choice was more operational: an electronic bill of lading. What makes this more interesting is that respondents seem to think that customer expectations for real-time visibility is greater than what is currently possible.

What's interesting about the continued importance of visibility is that, overall, it has increased over the past two decades. Dick Tracy's watch phone has rung to life. Knight Rider's Kit is more real than imagined. The robot in Lost In Space would be at home in many DCs today. Yet, at this time of great technological advances, there is a need for more.

Searching for meaning

What does it all mean and what do we do now?

All of these changes point to one thing: the increased need for timely information. Information is becoming, as one respondent we interviewed noted, "table stakes to enter the game." Walter Wriston, the former CEO of Citicorp, once wrote: "Information about money has become almost as important as money itself."

For a more effective and efficient flow of goods, supply chain information needs to move seamlessly across

company boundaries. This will require greater intragration (internal to the firm) and integration (across the supply chain). Having the information is only part of the equation: firms will have to execute using it.

This is not a challenge that can be accomplished by a single carrier, let alone a single shipper. Working on the edges will not get the productivity gains needed. Rather, it will require a collaborative network—closed or open—of shippers and carriers working together on a single platform.

Digital direction

This points to, perhaps, the greatest untapped opportunity for the managers in the logistics and transportation industry. Will we create, support or partner to create collaborate networks of firms to manage the 2.3 million trucks running empty 25% of the time? Or, more precisely, is

7 R's of logistics in flux

	WHERE WE'VE BEEN	WHERE WE'RE HEADED
Right time	Days	Within hours
Right place	DCs	Consumers (stores becoming DCs)
Right price	Important	Greater willingness to pay for convenience/speed
Right product	Make to transport; narrow margin for damage	Wider scope of products being shipped/produced in transport
Right quantity	Pallets	Eaches
Right customer	B2B focus	D2C
Right condition	Important	Perfect; no tolerance

Source: 29th Annual Study of Logistics and Transportation Trends

the digital freight network right around the corner?

The digital direction has to be focused internally and externally. While firms have worked to minimize costs and maximize efficiency, they have done so based on their own single network.

If information were more ubiquitous and available, shippers and carriers could work together to reduce costs, become more sustainable and increase profitability.

Getting ready for the digital redefinition of transportation starts with the right mindset. It starts with understanding that the road to riches has changed as well as the understanding that the digital redefinition of transportation requires the right tools. APIs, TMS, eBOLs, AI, machine learning and a dozen other technologies not only need to be part of the conversation: they need to be part of our processes.

Also, the digital redefinition of transportation requires the right partners. Some firms will stay analog, assuming past success will lead to future success. This is partially correct, in that they will serve a market, but one that is ever-decreasing in size.

We too have seen the slow change and adoption of technology in the discipline. The interconnectedness of all of the modes, technologies and people can make any significant changes slow to implement. However, for some companies, these changes present an opportunity to gain competitive advantage as they pivot to establish themselves as digital front runners in the redefinition of transportation. •

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