



# Beyond the *Movement*

How Fundamental Shifts Across  
Industries Will Elevate Transportation



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# *Author's Note*

Historically, we have released an annual compilation of excerpts gathered from thought leaders across industries to enhance our dialogue around topics of interest to our shipper clients. The Breakthrough spirit of innovation that drives us to always reach for more does not stop at our client interactions and solutions development. Much like our team, services, and the scope of our business, our desire to provide thought provoking commentary evolved into something much more than we have ever released.

Finding novel topics to highlight can be difficult. We, along with many publications feel like a broken record: *data is everywhere, complexity has increased, the only constant is change*. These mantras, while true, are missing a key characteristic that make the commentary surrounding them useful to those who are executing strategies on the ground. That characteristic is **context**.

Our candid conversations with passionate and charismatic leaders in data science, behavioral economics, policy, and transportation struck us differently than they have in years past. In this, we felt a much deeper shift occur.

Previously, we provided brief commentary on large, bucketed topics that focused on concrete events. But true trends cannot occur in a vacuum, so this year we could not, in due diligence, present these ideas as separate narratives within an abbreviated document.

We illustrate our process to bring life to the idea that the way our industry is changing is far more nuanced and dynamic than a single moment in time, blog post, paragraph, or interview could convey. For this reason, along with our commitment to providing our clients with best-in-class, strategic solutions, we are releasing our first journal to provide strategic thought leadership.

— **Sarah Krier**  
Digital Marketing Manager  
Breakthrough



## Introduction

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# The Transportation Precipice: *Ushering in a Decade of Innovation*

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Transportation is not immune to changing business mentalities or economic conditions, and our strategies will need to adapt to keep pace.

Transportation is moving beyond the movement of goods. In a world where consumers demand products faster than ever, thinking about transportation strategies outside of executional demands and from a wider systemic scope will create greater competitive advantage.

We are at the precipice of a deep and fundamental change in the way we think about, execute, and innovate the movement of goods through transportation networks and supply chains globally. Business mentalities are evolving, and transportation is not immune to this.

Breakthrough CEO and President, Doug Mueller says, “In working with some of the brightest shippers in our industry, we are sensing a shift in the way our clients are approaching the core problems being solved in transportation. They are ready for

a change, and many will be on the leading edge of it.”

### *Hear Expert Insights from Thought Leaders Across Industries:*

In this journal we draw parallels across the thought processes of a diverse array of experts within the context of the transportation industry to illustrate how to best approach strategic leadership as it relates to culture, change management, data science, and decision-making.

In 2020 and far beyond, perspectives will shift to consider the wider reaching system dynamics of who and what is affected by transportation. As you read this journal, we hope you become curious about how the fundamental shifts felt across transportation will manifest and change the way you do business.





*“...we are sensing a shift in the way our clients are approaching the core problems being solved in transportation. They are ready for a change, and many will be on the leading edge of it.”*

—Doug Mueller



**Johnnie Dobbs**  
Retired, Executive Vice President  
of Logistics, Walmart U.S.



**Daniel Elliott**  
Founding Partner, Daniel  
Elliott, LLC



**Linnea Gandhi**  
Adjunct Assistant Professor of  
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**John Kahan**  
Chief Data Analytics  
Officer, Microsoft



**Doug Mueller**  
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Senior Director of  
Transportation,  
Conagra Brands



**Brett Wetzel**  
Director of Applied Knowledge,  
Breakthrough

# Leading Change Through a Paradigm Shift: *Uniting People & Process*

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No matter the scope of transformation facing your organization or purpose, cultivating loyalty and ownership across all levels of a team will make the actualization of your vision possible.

The year 2020 is not the first to bring unprecedented change to the transportation industry. While the conditions, technology, and challenges facing supply chains may feel unfamiliar, we can learn how to navigate these shifting paradigms from previous revolutions.

Revolutionary is only one way to describe the vision, size, and scope of one of the world's leading retailer's journey to the dominance we see today. That retailer is Walmart.

When Johnnie Dobbs, now retired as the Executive Vice President of Logistics for Walmart U.S., first joined the organization in 1990, the retailer was fully operational in 33 states. That year, Walmart sales quadrupled over the previous five, marking the beginning of several decades of unprecedented growth, propelling through the 2000's.

His long career with the retail giant included roles throughout transportation, warehousing, and membership, each of which was stamped by the hallmark of this era: growth. Dobbs' leadership came at a time when the organization was growing exponentially in both size and scope. His unique leadership style speaks volumes about not only his ability to usher in change, but

also that of an organization that navigated challenges with prowess.

## ***How did Walmart Evolve?***

They grew. Rapidly.

"Everyone understood that the commitment was to grow," says Dobbs, "you have to have a vision for that future and be committed to it, but it doesn't have to be crystal clear."

In his early years with the organization they constructed and brought to operation a new supercenter almost daily and opened as many as eleven distribution centers in a single year. Scaling a retail business to this degree was unheard of, and the catalyst that enabled this evolution was Walmart's ability to adapt and grow its transportation strategy.

This growth massively shifted their transportation networks to accommodate new locations almost daily. Despite the myriad of practical and logistical considerations for this magnitude of growth, managing a change mentality across hundreds of thousands of employees proved to be Dobbs' biggest challenge.



## *idea in practice*

*Consider your most valuable assets as a company. How might technology and resources compare to your human capital? Is the use of these assets mutually exclusive? Or mutually inclusive?*

A 2017 Forbes article cites weak culture, lack of vision and buy-in, poor communication, and change fatigue as sources of failed transformative initiatives<sup>1</sup>—all of which are qualitative aspects that can be difficult to measure and even more difficult to execute.

So, how did Walmart weigh the immeasurable human side of this monumental shift against their concrete tactical goals?

### ***Balance Performance with Your People***

“Not only was the challenge to physically get those things done, but one of the challenges is getting people ready to take on new roles,” says Dobbs. “You really have to compartmentalize and get a plan around the infrastructure, structures, and transportation networks that support it, but you also have to have people that are brought onboard to learn the processes and culture and how to work in that environment.”

No matter how infallible your process, technology, or innovation, humans must be in the loop to identify limitations, mitigate challenges, and see it through its execution. When an organization has tried and true processes—and a host of suppliers and partners they trust to navigate the complexities of a constantly evolving network—they can focus on developing their people.

Dobbs reflects on his time in the 90’s and talks about their commitments: first to their customers, then to their goal, but always to their people.

“One of the things we were committed to was building a culture and environment that felt inclusive, that people were important. Not just the managers, supervisors, and leaders, but all the people.” They struck a balance that serviced customers, executed on their goals, while simultaneously developing a process that was dedicated to creating a future.

### ***Enact Processes that Enable Innovation***

Dobbs repeated one key word over and over in his descriptions of their success: process.

Many organizations before Walmart, and long after, have grappled with the difficulty of mobilizing a team of great scale.

As Former Chairman of the Surface Transportation Board and Founding Partner for Daniel Elliott, LLC, Daniel Elliott describes, “Large corporations that have had a great amount of success built their management and structure around that legacy success model. But they’re also less likely to take risks by implementing new ideas. I think by being large and not as nimble, it is more difficult to adapt.”

Compared to the smaller-scale, startup culture that pervaded through the 2000s and endures today, legacy retailers face vastly different challenges. It comes down to a fear of new horizons, of being agile and adapting quickly. But Elliott also says that no matter how much they desire and believe in transforming for the future, “they’re just not built to adapt.”

Walmart understood the challenge facing them and dedicated entire teams to restructuring the way they innovated during this time. The key to Walmart’s successful growth model was their deeply rooted belief in empowering people to pursue the organization’s vision, and their determination to build and adhere to a process that made it a reality. Without vision, employees had nothing to inspire them; without process that vision was worthless.

Powered by a strong corporate vision to expand both their retail footprint and the transportation networks that connected it, the processes were clear and repeatable. They created a culture that was driven

# *What is Innovation?*

in-no-vate | v. 1.: to introduce as or as if new 2. archaic: to effect a change in<sup>2</sup>

Though commonly affiliated in the mind of readers, headlines of exposés, and opinion of our society, innovation is not necessarily a reference to technology. Innovation is a process. It stems from the innate ability of people to find novelty in the status quo through a creative, often indefinable thought process.

# *What is Process?*

pro-cess | n. 1. a: progress, advance b: something going on 2. a (1): a natural phenomenon marked by gradual changes that lead toward a particular result (2): a continuing natural or biological activity or function b: a series of actions or operations conduced to an end<sup>3</sup>

We talk about processes so pervasively throughout our workday, in the home, and in social context that our mind makes rational leaps to sequential, repeatable directions. We settle on the idea of an SOP, a recipe, or protocol as processes that inform our lives, yet this is a limiting scope to consider.

Process is not necessarily linear.

According to Dr. Michael Hammer, president and founder of Hammer and Company, author, and organizational process engineer, process is “an organized group of related activities that together create customer value.”<sup>4</sup> With this definition informing your strategies, your teams can begin to operate outside of the parameters of sequential tasks, dynamically collaborating around a shared goal: creating value.

# *How to Cultivate Better Innovation Processes:*

There are three considerations that are often lost in the innovation process:

## **Creative Collaborative Spaces**

This comes from the intentional design of your environment. Workspaces and teams that foster the intermingling of diverse backgrounds, disciplines, and ways of thinking are more likely to introduce the potential for a novel insight.

## **Challenges vs. Opportunities**

It is easy to find the broken pieces of your strategy and operations to try to “solve,” but don’t neglect your status quo. Often, operating with a “business as usual” mentality is a major limiting factor. Although it can be challenging to identify truly novel ways of doing things, renovating existing processes can unlock your biggest breakthroughs.

## **Find Your Collective “Why”**

Best-Selling author, Simon Sinek<sup>5</sup>, discusses what separates truly successful companies from the average organization. In his words, that difference is operating from their “why.” It is easy to solve problems, but to incite deep, convicted feelings of belief in your products, people, and purpose, is challenging.

and accessible from top to bottom. When challenges arose, their measures were corrective and immediate. They “did not hesitate to bring in outside help, opinions, and resources” whether from external partners or other site managers that demonstrated good judgement. This created a diverse team that challenged and iterated their systems in ways that made them stronger and eliminated inefficiencies.

Their systems were strong, but the loyalty of their people was stronger. This balance created a mutually inclusive symbiosis that recognized and elevated both the merits of human instinct, and the consistency of repeatable, measurable strategies.

### *Cultivate a Culture Where Everyone is Heard*

One of the most poignant reflections from Dobbs was his genuine admiration for the people he encountered. He spent much of his time with his boots on the ground at distribution centers and retail locations having genuine, face-to-face conversations with his team.

Dobbs says, “...at one time the logistics division was around 100,000 people. Having the impact that we had on those thousands of people, that is what I’m most proud of. Yes, we built out this impressive transportation network, which was great, but having the ability to build those relationships, and careers, and livelihoods made it all rewarding.”

Dobbs’ perspective is firsthand and instinctive, but research supports the idea that this people-first approach is imperative to implementing even the most guaranteed technologies and processes—let alone fostering revolutionary transitions. One GALLUP study suggests collaborative visioning and iteration results in “a small army of ‘change champions’ from Day One.”<sup>7</sup> And accomplishing change of

this scale requires an army.

In the Walmart transportation department, they spent time cultivating buy-in and feedback from leaders at every level. All the leaders from the top down located at the corporate headquarters met on Friday mornings to discuss progress, challenges, and share updates from their area of influence. Leaders in the field called in remotely and were expected to give updates from on-site locations and engage with senior leaders. This gave executive leaders visibility and exposure into field operations and allowed the full team to collaborate on solutions based on both shared and collective experiences. This resulted in a great deal of ownership from the bottom up.

That same GALLUP study also talks about the power of meaningful conversations. Dobbs says:

“In the logistics and transportation division, we believed in that. It wasn’t something that we just did as a corporate strategy, it was something we believed in. We believed that if you get people to feel good about what they are doing and you respect them and you aren’t full of yourself, that’s how people work best.”

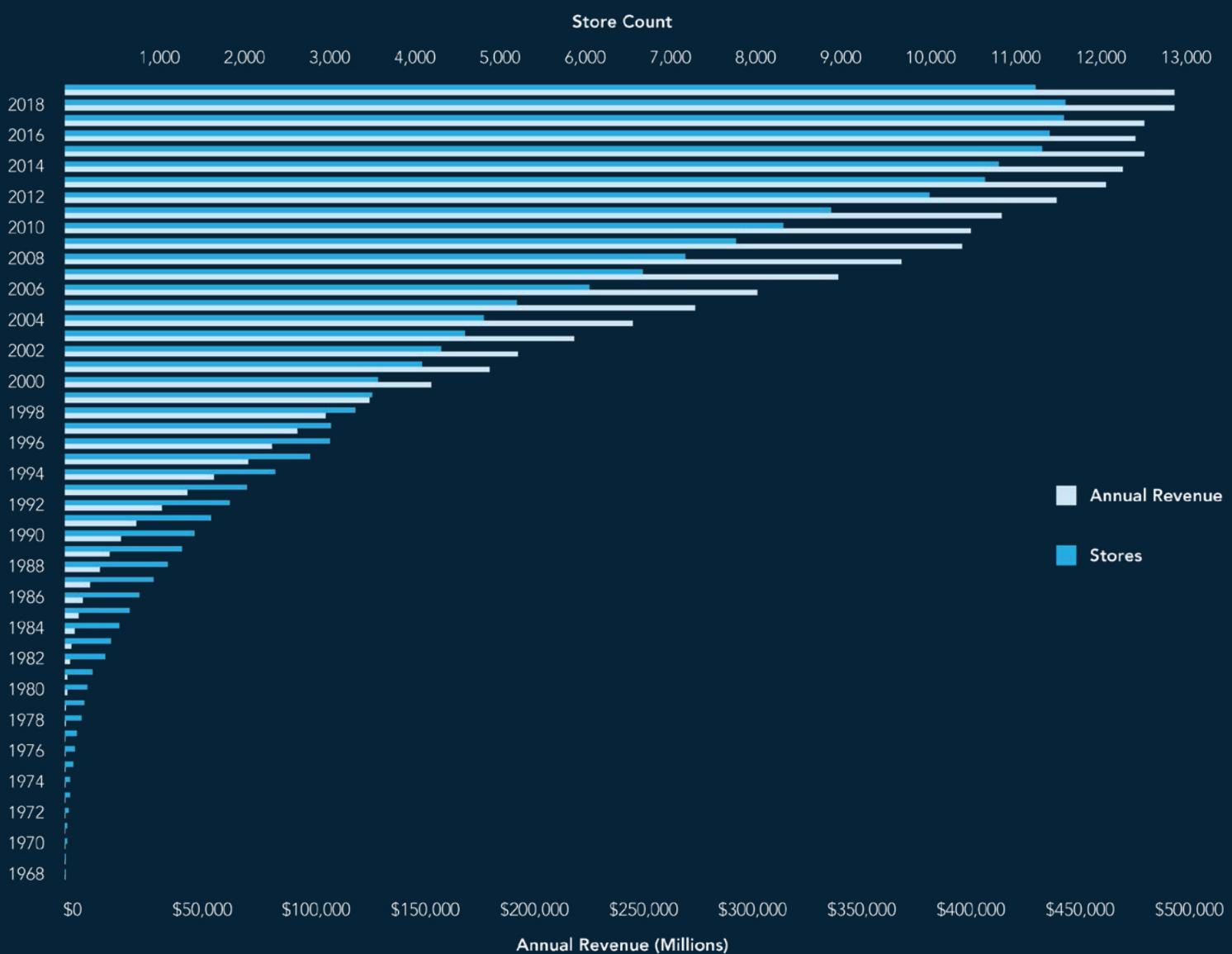
He goes on to say “you have to get away from doing the entourage tours and get out and walk by yourself. People will tell you if things aren’t going well, but you have to listen. It’s pretty clear.”

This pervasive and convicted commitment to the evolution of Walmart’s processes, growth, and brand, backed by a firm foundation that kept peoples’ best interests at heart, built the \$514 billion institution<sup>8</sup> that we see today.

Dobbs was promoted to Executive Vice President of logistics in 2006 and retired in 2013. He had widespread operating

# *Walmart Revenue & Store Count*

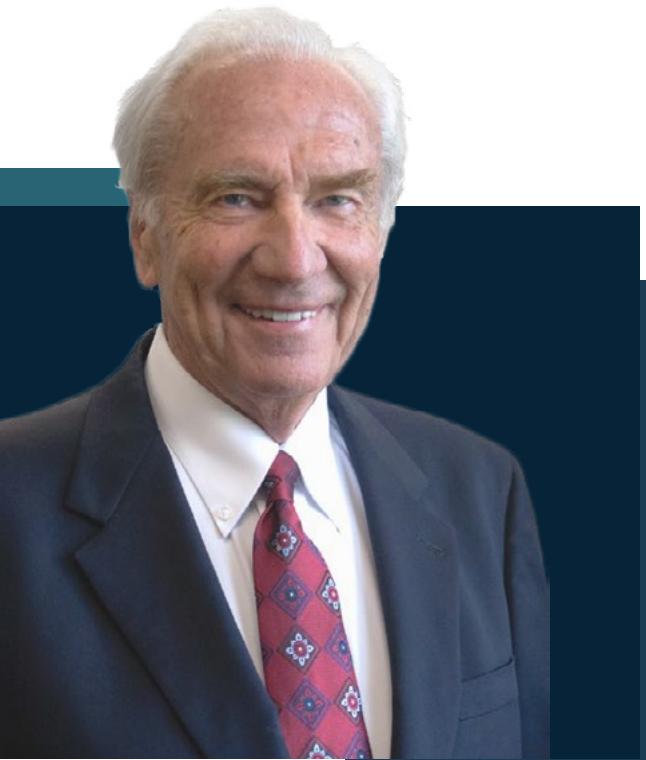
1968 — 2019



Source: "Walmart," accessed Feb 25, 2020, <https://en.wikipedia.org/wiki/Walmart>

*“...we built out this impressive transportation network, which was great, but having the ability to build those relationships, and careers, and livelihoods made it all rewarding.”*

—Johnnie Dobbs



Don Soderquist

# The Vision *of a Leader*

A Note From Don Soderquist

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In Dobbs' reflections, he cites the late Don Soderquist, former Chief Operating Officer and Senior Vice Chairman of Wal-Mart Stores Inc. During Dobbs' tenure, he stated that Soderquist influenced his perspective on leadership, vision, and people greatly.

As Soderquist said:

*"Vision is the beginning point of any great endeavor. Vision is a picture of how we would like tomorrow to look—or, put another way, how we would like ourselves to look tomorrow. Every good leadership book identifies vision as an essential characteristic of a leader, and every good leader has learned his or her responsibility to create and communicate a vision. But the danger is that talk of a vision has become so prevalent—maybe even so commonplace—that many leaders take the process and discipline of vision-casting for granted."<sup>9</sup>*

Always a balance between the vision and the operational execution, this statement, among many, describes the type of charismatic, people-focused leadership that Dobbs says was a hallmark for the multibillion-dollar company during this time.

After officially retiring from Walmart in 2002, Soderquist refocused on Soderquist Leadership, a leadership program with John Brown University offering "values-focused development training."<sup>10</sup>

responsibility covering all general merchandise, fashion, grocery, Sam's Club, import, and specialty distribution centers. He also had operating responsibility for all domestic and global ocean transportation functions.

When pressed for his proudest memories of working with one of the world's premier retailers—and a career that boasts impressive accomplishments—his response was simple.

"I don't remember the conveyor systems or robotics that I helped build," Dobbs says, "what I remember are the people I worked with."

Though most organizations do not expect to physically scale their retail footprint the way we saw of Walmart in the 80s and 90s, the challenges navigated in the 2020 marketplace can be approached similarly. In today's digital age, e-commerce, web services, alternative energies, and data processing, among other initiatives will dominate the supply chain transformations of the 2020s.

But technology alone is not enough to facilitate the revolutions anticipated in the coming decade. Without talented people building your culture of change and challenging your current status quo, realizing an organization's vision is impossible.

#### ***Keep Transformations Future-Focused and Human-Compatible***

Transportation professionals can learn an important lesson from the leaders who navigated past paradigm shifts: though trends are cyclical, people will remain integral to your process.

By keeping team members—from executives to interns—aligned behind a shared vision, organizations will both attract and retain talent that is passionate about furthering

their strategies. As the industry continues to evolve and ultimately gives way to uncertain futures, leadership that remains relatable and approachable develops trust that helps mitigate problems before they scale.

Ultimately, staying committed and true to the course created at the outset of 2020 will ground large organizations amid flurries of innovation, pivots, and change.

Networks will always change and evolve, but what will remain constant is the need to have talent and intellectual capital to understand them. Your strategy will ebb and flow from



***"I don't remember the conveyor systems or robotics that I helped build," Dobbs says, "what I remember are the people I worked with."***

—Johnnie Dobbs

# *Key Takeaways:*

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Genuine leaders who care deeply about the well-being of their people and approach their teams humbly will cultivate deeper loyalties.

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Vision, no matter how thoughtful and well-planned, cannot be realized without buy-in from your people. Recognize when change is happening faster than your team is prepared for and involve them in the problem-solving process.

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Strike a balance between cultivating your people and adapting your process when approaching your innovation strategy. If the steps you have laid out are specific to today's market conditions, consider expanding them to be more agile and timeless.

*“Algorithms do not exist without data. And so, the more we open up data, and share data, the more powerful it becomes.”*

—John Kahan

## Chapter 2

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# Amplifying the Value of Artificial Intelligence: *The Power of Collaborative Data*

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*Silos of data are not the future, and collaboration will predominate the data science landscape of the future. Recognizing the potential of tomorrow’s processing power will change the way we use and share data.*

With growth like that experienced by Walmart and countless other retailers and manufacturers comes ever more complex transportation networks. The boom of e-commerce, evolving consumer preferences, and sustainability demands mobilize more moving pieces in the shipment of a single good.

Every shipment along this journey creates innumerable data points to be tracked and analyzed. Data is at the heart of every facet of this complexity, and as Conagra Brands’ Senior Director of Transportation, Brian Stoufer explains it, “Visibility has brought one unexpected innovation to transportation: a plethora of raw, unfiltered data ripe for analysis.”

With complexity comes the need to solve more complex problems in more complex ways. Stoufer says, “This data has the potential to create more opportunities to tweak and adjust transportation strategies, but it needs the right

tools and thinking surrounding it.”

### ***Longstanding Strategies Meet Today’s Data***

Those tools and that thinking lie in the power of data science. As the integration of data science into operations and business decisions becomes more commonplace, one fact is important to remember: the algorithms haven’t changed much, but the people using them have.

Chief Data Analytics Officer at Microsoft, John Kahan shares both his excitement for the new ways data is solving problems, and his admiration for its history—both of which are currently manifesting in projects with Microsoft.

Kahan says, “The fact is, most of the algorithms that data scientists use today were invented fifteen to twenty years ago. What’s changed dramatically is the availability of



*“This data has the potential to create more opportunities to tweak and adjust transportation strategies, but it needs the right tools and thinking surrounding it.”*

—Brian Stoufer

data and the sheer processing power that we have in our cloud. That has allowed us to iterate at a much higher rate than ever before.”

### *Human Intuition Amplifies the Value of Artificial Intelligence*

The way we leverage algorithms is evolving our thought process. Artificial intelligence is exceptional at computing numerical results to numerical problems—like “carrier A has available capacity on the spot market for X price.” But what they lack is human intuition—“Rates on this shipment should be lower because this carrier is eliminating deadhead on an out-of-network shipment.”

Science fiction illustrates a future where artificial intelligence independently solves the same complex problems that humans comprehend, but that’s where Kahan says the perceptions about data science are evolving.

“The way we look at things is that you must have humans in the loop. It’s no longer

acceptable to even think about using an algorithm if you don’t fully understand what the algorithm does.”

### *Solving the World’s Humanitarian Challenges with Data*

Microsoft knows this to be true and has taken a new approach to solving problems—and not just business problems. The \$125B tech company<sup>11</sup> is on the leading edge of this new era of thinking that combines experiential expertise and powerful data processing models. In fact, Microsoft is investing in a philanthropic program called AI for Good, that is dedicated to driving innovation through artificial intelligence on society’s toughest challenges.<sup>12</sup>

In describing the program, Kahan says, “we recognized that in order to get this job done, to solve some of the real challenges in the world, we had to take a different approach.” That approach was to introduce non-data scientists to the data science equation.

## *AI for Good*

Microsoft recognized the need to put the power of their solutions in the hands of people who can bring context and expertise to the table. Their “AI for Good” program is “providing technology, resources, and expertise to empower those working to solve humanitarian issues and create a more sustainable and accessible world.”

For more information visit their website: [Microsoft.com/en-us/ai/ai-for-good](https://Microsoft.com/en-us/ai/ai-for-good)

The breadth of programs they support cover the following:

- AI for Earth**
- AI for Health**
- AI for Accessibility**
- AI for Humanitarian Action**
- AI for Cultural Heritage**

## *idea in practice*

*What unconscious biases are your data, teams, and operations subject to? How might these be manifesting in your operations in singular instances, and over time?*

"If you think about what my mission is—to infuse AI and data science to help solve the world's challenges—you don't do that with a bunch of computer scientists. You do that with economics majors, statisticians and mathematicians, and biologists, and genomics experts."

Microsoft is using their data processing power and mission to collaborate with experts in fields across the world that are trying to solve massive problems facing humanity. Everything from addressing declining populations of endangered species, to increasing accessibility for vision-impaired communities, to improving outcomes for children undergoing cleft palate surgery, to recreating civilizations of the past, is being addressed with Microsoft's program. These experts are all exceedingly knowledgeable about many things, but often lack one key factor: access to data and processing power.

### **Diverse People Create Diverse Algorithms**

"That's how we address the human behavior side of things, because humans must be in the loop in this equation to avoid unconscious bias." Kahan says this interdisciplinary approach is uncovering powerful insights never before possible.

In discussing this type of approach in transportation, Breakthrough Director of Applied Knowledge, Brett Wetzel says, "What we see in transportation is that transportation teams, sustainability teams, and data science teams don't talk to each other on a regular basis. They often operate independently. But what we also see is that in transportation, partnerships between professionals who are executing on the ground, and an unbiased third party that has the power for deeper

analysis help eliminate biases in decision making and creates better outcomes."

In these analyses, human biases are very much still at play, but Microsoft's research demonstrates the benefits of human intervention and reasoning in the equation.

When you add diversity in the people working on your algorithm, you get a more human, more inclusive algorithm. As Kahan describes, "if a team of middle-aged, Jewish men from New York, like myself, design an algorithm, it will be an algorithm biased towards middle-aged, Jewish men from New York."

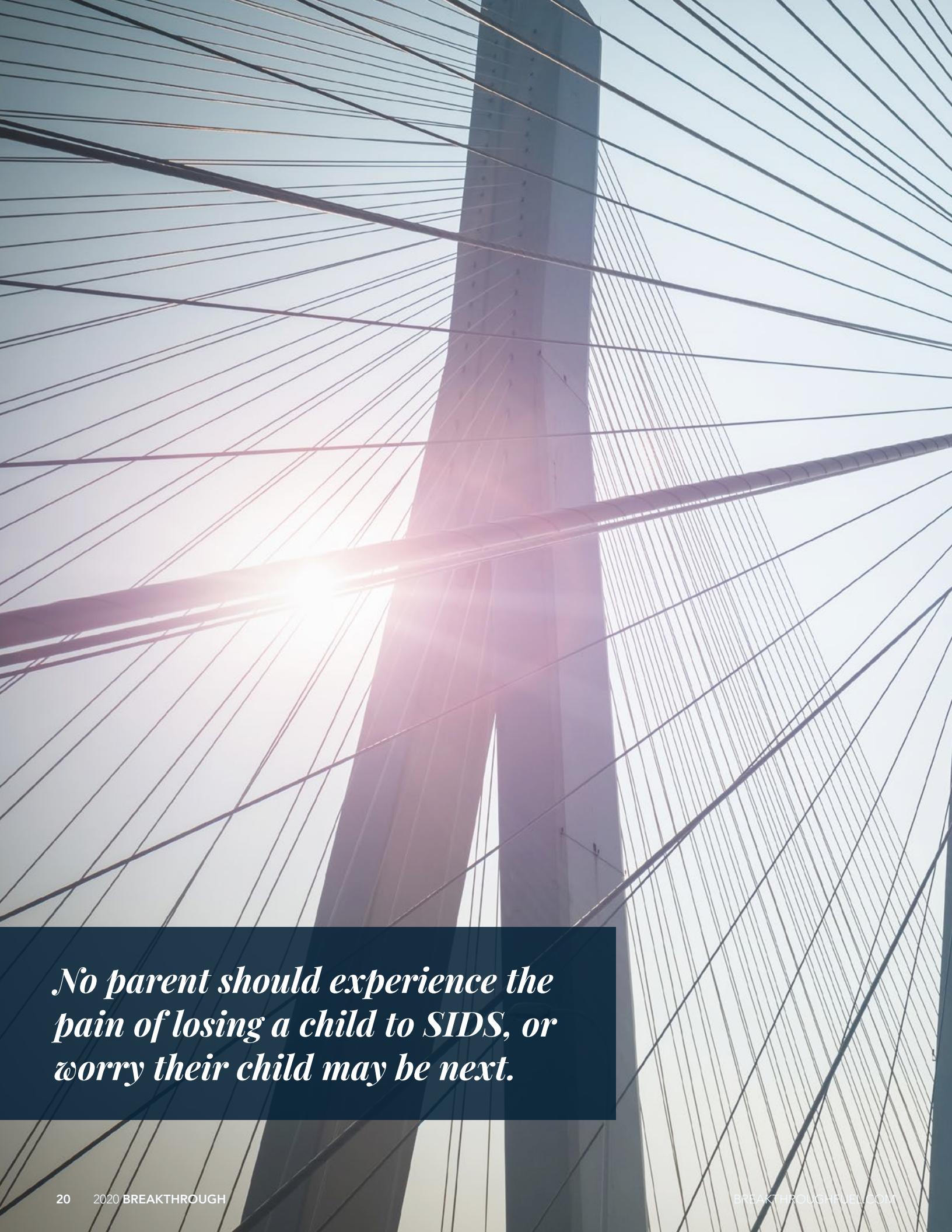
Microsoft focuses on broadening their scope of experts by partnering with external research teams, and the results have been successful.

### ***When Data Becomes Personal: Solving the SIDS Mystery***

For Kahan, those partnerships have most profoundly manifested in Microsoft's commitment to understanding and stopping Sudden Infant Death Syndrome (SIDS) globally.<sup>13</sup> This cause, however, is far more than an algorithmic problem to solve. This problem is personal for Kahan, his family, and thousands of families across the U.S. and beyond every year.

Kahan speaks widely about this cause, citing awareness as one of the first necessary barriers to bringing together the right people to solve a problem. His infant son, Aaron Matthew, passed away unexpectedly fourteen years ago. Kahan says his journey began because, "to this day, we don't know why Aaron died."

According to the CDC, roughly 3,600



*No parent should experience the pain of losing a child to SIDS, or worry their child may be next.*



## Committed Through Partnerships: The Fight to End SIDS

After unexpectedly losing his infant son, Aaron Matthew, in 2003, John Kahan and his wife, Heather Kahan, founded the Aaron Matthew SIDS Research Guild of Seattle Children's Hospital. The guild partners with leaders and researchers from Seattle Children's Research Institute's Center for Integrative Brain Research. It also includes leaders from Microsoft, Accenture, Marriott Hotels, and Adobe, as well as researchers from New York University, Langone Medical Center, Rutgers Robert Wood Johnson Medical School, University of Virginia, University of Auckland, and University of Bristol England.<sup>13</sup>

The guild is a true embodiment of Microsoft's belief and commitment to tapping into the value of diversity of discipline and expertise to solve

problems.

John and Heather continue to spread awareness and raise funds for this research. They will match gifts over \$250 up to \$250,000 for the Aaron Matthew SIDS Research Guild. Kahan wrote a book titled, *The Arctic: A Photographic Journey* showcasing his own photography from his travels. All net proceeds go to benefit SIDS research, and he participates and organizes philanthropic hikes, including his emotional summit of Mt. Kilimanjaro in Africa.<sup>14</sup>

For more information and for the opportunity to donate, visit their website: [GiveToStopSIDS.org](http://GiveToStopSIDS.org)

# *How to Mitigate Limiting Biases in Data According to John Kahan*

*Kahan states three processes Microsoft employs to address the limitations of unconscious biases in their algorithms:*

## **1** .....

Integrate diverse demographics among the humans that intervene and interact with the algorithm. This cohort should be representative of the markets it will serve so that the algorithm itself represents the ethics, values, and behaviors of that audience.

## **2** .....

Beyond demographics, create a team that is diverse in discipline. In the past, algorithms were almost exclusively built by computer scientists or mathematicians. Today, teams should consist of doctors, researchers, students, policy makers, and the people with qualitative experience on the ground.

## **3** .....

Peer review, then review again. At Microsoft, they have an extensive internal peer reviewing process which is then married with a review by external experts in that specific field. Nothing goes out their doors unless it has been challenged, iterated, and then published mutually.

children in the U.S. do not live to see their first birthday<sup>15</sup>—and nobody knows why. This is a harrowing fact that remains unexplained, but Kahan believes that will not be the case forever.

Microsoft's AI for Good team partnered with Seattle Children's Hospital to bring together a team of data scientists, computer programmers, statisticians, PhD students, and more to change the way they approach this devastating problem. They hope to find a new kind of innovation by arming some of the world's foremost medical researchers with rich and powerful datasets.

In projects like the SIDS research, there are two major factors Microsoft considers from a data perspective. Those two factors are eliminating unconscious bias and preserving data privacy.

These factors have implications far beyond SIDS research, however. They are important to citizens, professionals, shippers, carriers, and beyond.

### ***Privacy, Bias, and Accessibility in Health Research and Beyond***

In Bill and Melinda Gates' 2019 Annual Letter published to the GatesNotes blog, Melinda says, "Data leads to better decisions and better policies. It helps us create goals and measure progress. It enables advocacy and accountability."<sup>16</sup> Yet, she goes on to discuss the limitations of data, and how they can ignore vast swaths of people and behaviors—namely women and low-socioeconomic populations. The data that women are most often included in surrounds a very specific—and often problematic—subject: their reproductive health.

With such a niche dataset available for research surrounding women, important factors and datapoints are being ignored—which in turn makes finding solutions for women beyond reproductive health incredibly difficult from a data perspective. This raises some very important questions about data accessibility.<sup>17</sup>

Those same limitations can be said about nearly any dataset. When the data is limited, whether by accessibility, bias, volume, or otherwise, it is a challenge to glean meaningful insights. Additionally, it can be easy to identify individual people or organizations from that dataset. In health research, where privacy is paramount, this becomes problematic.

From a privacy perspective, Kahan says “One of the biggest challenges in any health research is the balance between privacy and innovation. How do you innovate in a world where you also want privacy? This is a very big challenge in everything we do.”

Kahan goes on to state a simple but powerful fact: “There is no piece of data in the world that doesn’t have an implication, both negative and positive uses of it.” Recognizing that data can affect the livelihood and safety of people and organizations across the world is important to keep central in these processes.

But it is also important to remember that “silos of data are not the future.” Without a wider amalgamation of data in the efforts to stop SIDS, correlations could not be made to the sleeping position of infants, or the socioeconomic status of mothers, or more.

Here is where the delicate balance between privacy and innovation for the future lies.

So, how can professionals, organizations, and researchers aggregate data while protecting

the privacy of its constituents?

### ***Differential Privacy<sup>18</sup>***

Within an aggregated dataset the fear is that an individual or business’ personal information will be identifiable. Kahan says, “Differential privacy flips this on its head.”

Simply put, you “add data to the data” to muddy the waters and confound the ability to draw one-to-one conclusions. By introducing statistical noise, you can heavily reduce the ability for third parties to identify any one person or organization from the dataset based solely on the results of the analysis. Differential privacy statistically guarantees increased privacy while allowing a researcher to find meaning in it.

In this way, you can identify trends, correlations, and conclusions from a dataset, but you can never identify an individual within it.

Whether saving the lives of infants, understanding immigration data, or finding broader trends among competitors in the transportation sector, the implications of this work are far-reaching.

### ***How does this drive the trajectory of the transportation landscape in 2020?***

In 2020, business leaders are searching for solutions that bring a greater degree of granularity and insight to their operational strategies, but they are also keenly aware of the risks of sharing data. Transportation is not, and should not be, immune to this shift, and applications for this type of collaborative thinking are beginning to emerge.

The transactional nature of securing carriers

## ***idea in practice***

Consider the sample of data your organization uses. In what ways is it representative? Limited? Biased? What data is needed to make it more representative of the audience and tasks you serve?

to move freight is the bare minimum needed to execute a strategy. Qualitative factors across numerous networks are at play that contribute not only to the bottom line, but to the overall transportation ecosystem shippers care about. This, however, can be difficult to quantify with a simple math equation.

As Breakthrough CEO and President, Doug Mueller, explains about transportation procurement, “What the marketplace has is a lot of smart data scientists that have come out of fields other than transportation saying this is an easy math problem. That transportation is a commodity based on capacity and price. But we see shippers that are ready to move beyond that.”

In 2020 and beyond, approaches like that of Microsoft’s—combining expertise with quantification—will help decommodefy the transportation relationship and optimize the full transportation ecosystem. Where digital load boards are helpful for of-the-moment freight disruptions, more sophisticated

tools that consider both quantitative and qualitative factors like service, relationships, market conditions, the rate environment, and individual organizations’ strategies become even more valuable. In the hands of the right people, these complex problems find complex and powerful solutions.

#### ***Thinking Beyond Today’s Operations to Realize a Collective Future***

Creating a tool like this requires innovators. It requires a shipper community willing to take risk, willing to collaborate, and marry that aggregated dataset with industry expertise. The algorithms and expertise are already out there. Kahan says, “Algorithms do not exist without data. And so, the more we open up data, and share data, the more powerful it becomes.”

As Brian Stoufer at Conagra says, “One thing that has changed is the ability to know what data to share and when to share it. Transportation has had a step-change in

going from making decisions with your gut to being significantly data driven. Those that find ways to capitalize on large amounts of data are going to be successful.”

As Microsoft has found, leaning on intuition and expertise while diving into wider swaths of data reaps the most successful outcomes.

Recognizing the history of how we not only interact with data but the means with which we process it lays a firm foundation for decades of innovation. Where historically our efforts have focused on eliminating people from the equation to receive the most unbiased, data-based solution, we now recognize the need for intellectual capital to operate and enable the best possible solutions.

In the case of SIDS, Microsoft is seeing this strategy bring to bear possibilities we have never seen before.

***“What the marketplace has is a lot of smart data scientists that have come out of fields other than transportation saying this is an easy math problem. That transportation is a commodity based on capacity and price. But we see shippers that are ready to move beyond that.”***

—Doug Mueller

## *idea in practice*

How can your data be used for good? Where is it vulnerable?



# *Key Takeaways:*



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Data processing power will solve complex problems faster and more efficiently than ever before, but this requires a more complete dataset. Opening data across stakeholders will reveal insights that we cannot glean from siloed datasets.

—

Diversity in the talent, disciplines, and backgrounds of people working through challenges will eliminate biases and allow you to leverage both data and expertise to think differently about legacy problems.

—

Privacy will remain paramount but does not need to preclude innovation and collaborative approaches.

# Thinking Algorithmically: *Better Strategic Choices Amidst Noise*

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*The evolution of problem solving will eliminate legacy ways of doing business. Understanding how to recognize and reduce biases and noise will elevate the quality and prescriptiveness of strategic choices.*

You need humans in the loop to bring to life the insights of the data, to recognize its limitations, and identify biases that will sway results. But the people who are conversely able to identify these same characteristics within themselves will elevate their operational strategies. Identifying the limitations and potential biases shaping your perspective will enable you to more effectively interact with your tools and data.

As new tools and the data that fuels them evolve, similar due diligence towards internal decision-making processes often lags.

With the current balance of this dichotomy, we are merely adding new technology to longstanding challenges that are ultimately putting band aids over old wounds.

In transportation, many professionals have a wealth of knowledge and experience from which they draw to make strategic decisions—*which carrier contracts to maintain, when to execute RFPs, which mode to utilize, how many carriers to*

*invite to an RFP, carrier vs. brokerage balance;* the list goes on. As access to information becomes more ubiquitous, leveraging that information in concert with the experience and knowledge of the industry will maximize success in the coming decade.

One of the most readily available examples that illustrates how decision making will evolve in transportation is in carrier selection strategies.

## ***Noise in Carrier Selection Strategies: A Decision-Making Example***

We spoke with Adjunct Assistant Professor of Behavioral Science at The University of Chicago Booth School of Business, Linnea Gandhi, about the role of “noise” in human decision making. Whereas statistical noise helps preserve privacy in large data sets like those in practice at Microsoft, in daily operation, it more often sways judgement. She suggests that first, professionals look at what makes their daily operations “noisy.”



# *De-Biasing vs. De-Noising*

## *Bias*

### **Definition:**

Systematically over- or under-estimating the value of a certain parameter, swaying results inaccurately or unfairly as compared to objective data.

### **Solution:**

De-Biasing: training people or redesigning a process to systematically correct for a known over- or under-estimation of a parameter.

## *Noise*

### **Definition:**

Non-systematic error in the estimation of the value of a certain parameter. Cancels out by averaging many estimates of the same parameter; problematic when relying on a random draw of only one of those estimates.

### **Solution:**

Replace subjective human estimates with algorithms; average estimates across humans; provide structure to the judgment process to reduce the influence of random, unwanted factors.

Noise contributes to a host of confounding factors that muddy the waters of decision making. It adds layers to the heart of the problem, making it difficult to recognize causation and ultimately leads to an inconsistent result.

An article by renowned economist Daniel Kahneman, and a team consisting of Andrew M. Rosenfield, Linnea Gandhi, and Tom Blaser, explains it, “humans are unreliable decision makers; their judgments are strongly influenced by irrelevant factors, such as their current mood, the time since their last meal, and the weather. We call the chance variability of judgments noise.”<sup>19</sup>

The article says, “Where there is judgment, there is noise—and usually more of it than you think,” and we can see this holds true across transportation relationships.

Considered in the context of carrier selection, the rainy weather, a tweet you read when you woke up, or the cold oatmeal you had for breakfast could influence your decisions. But it’s just as likely that your working relationships with carriers are creating noise in your strategies.

Gandhi explains how “even our psychological biases can lead to noise in our decisions. For instance, when choosing where to go out to eat, I may think about which restaurants I liked in the past. But my memory is not a one-to-one picture with reality: recent and vivid memories tend to come to mind more easily, overweighting judgment. So I may avoid a restaurant whose service was poor last week.

She goes on to say, “This is a systematic psychological bias called “ease of recall.”

## ***With the current balance of this dichotomy, we are merely adding new technology to longstanding challenges that are ultimately putting band aids over old wounds.***

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“Now, imagine I was making the dinner decision for a group of friends. Each one of us is going to be susceptible to this bias, but which restaurants we’ve been to recently and how their service was at the time is pretty random. So that same bias is going to drive each one of us to come up with a different judgment of where would be best to eat. That’s noise.”

It all comes down to our biases in making choices—in a transportation example, which carrier should I put on a lane? When do I need to source a new carrier for that lane? How is that carrier performing against my expectation? One of the biggest fallacies made by transportation professionals is their reliance on their own memories and experiences. Even with all the data in the world at our fingertips, we need to be good stewards of the information we are given and of our own analyses.

When selecting a carrier, the assumption that your memory of one particular partner going above and beyond on a cross-country load over Labor Day in 2006 means that they are the best fit on that specific lane, or that they will continue to surpass service expectations in the future feels rational, and it happens regularly.

This is not a complete analysis. Here we see the limitations of relying solely on these

memories. One or a few instances cannot accurately represent a wider view of the factors at play because so many variables are left uncontrolled.

While often these biases are limiting, they are not always bad or necessarily incorrect. Gandhi says, “They all come from the fact that we are taking shortcuts. We have limited cognitive resources and can’t focus on all of the information available to us, so our brains take shortcuts that work well most of the time.

Gandhi says, “In some contexts, this can systematically lead to error—that’s when we call them biases.”

### ***Assessing Performance Amidst the Noise***

Recognizing the potential for noise in your transportation partnerships and operations is the first step to minimizing it. But without the right approach and cadence for assessing performance and choosing the right capacity on a lane, shippers face long periods of time where an opinion, hunch, or assumption act as law, which can be costly over time. In a vacuum, our biases in decision making contribute to a more time-efficient solution, but in systemic practice we start to see them backfire.

The converse to relying on human experience and intuitive decision making is transitioning to a fully-automated algorithm—that of

# Harnessing Network Wisdom & Ecosystem Data to Optimize Transportation

When monitoring performance and choosing carriers based on a full-network RFP, the granularity and nuances of your network can get lost. Many lanes go out to bid to many carriers, each of which will have unique challenges and benefits associated with them. To ensure you are always choosing the right carrier for the right price on each lane, your tools and processes should look at a broader picture of factors influencing your network.

## Lane Attributes

Whether looking at challenging geographies like the Rocky Mountain region or niche carriers in rural Wyoming, your best carrier fit will vary at the lane-level. Factors like the supply and demand of origins and destinations, and the volatility of shipments can help inform sourcing decisions. Not all lanes are created equal, and the corresponding service and strategy along each of them should be unique to these attributes.

## Shipper Parameters & Needs

Relationship parameters should be clearly defined and upheld from both carriers and shippers. Service, flexibility, and load requirements will dictate which shipper-carrier relationships are best suited for that contracted lane.



## Rate Guidance

Most shippers employ benchmarking in their procurement strategies – for rates, fuel efficiency, on-time delivery and more. This guidance can be directionally helpful, but often lacks visibility into the factors at play. When combined with robust datasets and more inclusive variables, like infrastructure density at the origin, shippers can become price makers in their network.

## Carrier Profile

A carrier's network does not start and end with your freight, and understanding how they interact with the greater transportation ecosystem will help you make better contractual decisions. Size, fuel efficiency, performance history, area of operation, and incumbency should be quantified and considered.

***“Unexpected disruptions—that happen in daily life on a regular basis—will limit an algorithm’s ability to operate in a silo from real-world intervention.”***

—Linnea Gandhi

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science fiction. The infiltration of complex algorithms in daily life has been happening for decades. The phrase you typed into Google predicted and displayed the exact Wall Street Journal article you were looking for. For transportation managers, the use of digital load boards provided capacity to thousands of shippers at the exact moment it was needed. Both are nearly perfect projections of the desires and intent of their users, but they are not infallible.

#### ***The Limitations of Math without Context***

While these use cases demonstrate a confidence in the consistency of decisions, this form of artificial intelligence has begun to bear its limitations to the market. That limitation? The strictly transactional nature of the problem. Gandhi describes where algorithms err:

“For example, you could build an algorithm that perfectly predicts when you will go to the movie theater using data from the last thousand movies you attended. The algorithm could be perfect, but what it doesn’t know is that you broke your leg last week. Those sorts of unexpected disruptions—that happen in daily life on a regular basis—will limit an algorithm’s ability to operate in a silo from real-world intervention.”

Even if shippers had the ability to look to

their data to make recommendations and adjustments to their carrier strategies, so many unpredictable data points that interact in the real world are ignored. A certain rate on a lane can be predicted, but without a full understanding of how hurricane season influences carriers’ ability to move freight or the supply and demand economics of manufacturing amid tariff wars with China—most algorithms being used today are going to be limited.

Digital load boards, for example, are no different. Based on location, timing, and current market rates, their algorithms spit out a one-time answer for the best capacity for your freight in that moment.

Conagra Brands’ Senior Director of Transportation, Brian Stoufer, says, “The problem the industry is trying to solve is that shippers need capacity, and they need it quickly. But this equation could actually be driving up costs and disrupting balanced flows.” The algorithms being used to determine rates for spot market freight are not considering the supply and demand balance along a single lane, whether that load will take a carrier’s tractor out of its normal network of operation, and how it interacts with the greater transportation ecosystem.

It simply takes a shipment, assigns prices to an empty truck based on other trucks in that

# The Algorithmic Team: ***De-Noising Decisions***

1

Allow for independent personal assessment when making strategic decisions. When operating in a team, let everyone conclude privately before collaborating to eliminate group think and a narrowed scope of possibilities.

2

Segregate characteristics being assessed, particularly with carrier selection and strategic partners. Personal biases may outweigh certain elements of the relationship (like carrier rates) rather than provide a holistic evaluation.

3

Think relatively. Rating something on a scale can be arbitrary, whereas putting *carrier A* better than *carrier B* because of their current presence in a certain market brings better context to their fit in your network. This shared reference point eliminates discrepancies in communication and in individuals' perceptions.

region, and produces a flat rate.

"The question that I think is hard to address is: how confident are we that using some of the capacity tools will create the right kind of capacity for the service and cost points?" says Stoufer.

Full reliance on automated processes in these types of decisions may make some professionals uneasy, and it may instill overconfidence of others. Both of those feelings demonstrate that most peoples' understanding of how to interact with algorithmic models is flawed.

## *Finding the True Value of Algorithmic Problem Solving*

The gains we get from moving to algorithms come from reliability, not necessarily the ultimate result they produce. When you verify rational thought with algorithmic answers

you can strike a balance over when you want to abide by expected answers, and when you want to deviate from the norm. This can be a huge strategic advantage.

How then, can the transportation industry equally leverage decades of hard-won experience with the powerful predictive tools available in data science?

Gandhi says, "You can take charge by redesigning your environment. Put yourself in an environment where the shortcuts you are making will direct you to a better answer."

For many, the news in 2019 was more confusing than it was helpful. Political biases, social media's proliferation, and the need to be a first mover rather than an accurate one created a climate that sensationalized market events. For transportation professionals, the information sources they tuned into could have shifted their perception of market



*Exposure to information is the first step, but Gandhi gave several comments about how to help your team think more algorithmically in operation:*

realities for much better or much, much worse. As such, the shortcuts, or biases, they operated with were influenced.

#### ***Recognition is the First Step to Mitigation***

Biases carry a lot of negative connotations, but they are a necessary adaptation to being human. Rather than eliminating your innate biases in the way transportation decisions are made, weed through the noise in your decision-making, and hold your perceptions against accurate and robust data.

The convergence of people, artificial intelligence, and data will become ever-more entwined in 2020 and beyond. Any given data point has thousands of other bits of data that could influence it. All of these factors

make up one, cohesive cycle that will inform and elevate not only transportation strategies, but leadership and decision-making across industries.

Using denoising strategies and understanding not only how your biases are at play in even trivial decisions, but how you can best leverage your experiences to tap into the power of data science and algorithmic thinking will bring a new level of confidence to your supply chain strategies.



***“Where there is judgment, there is noise—and usually more of it than you think”***

—Daniel Kahneman<sup>19</sup>

## ***idea in practice***

Where does your organization leverage expertise and experience effectively? Where can data be used to validate or refute legacy processes and viewpoints? How can intuition elevate the use of your tools?

# *Key Takeaways:*

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Identify how error in your decision-making—from the mundane everyday to the high-level strategic—could be coming from noise, bias, or both.

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Employ algorithmic thinking techniques when working as a team to ensure that no one opinion or experience outweighs the merits of what your data is telling you.

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Use a collaborative approach that leverages artificial intelligence tools with human intuition and judgement to reap better results.

# Executing on Promises: *The Future Role of Sustainability in Corporate Strategy*

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What are we all working toward? Industries are simultaneously shifting away from a sole focus on bottom-line revenue gain to make sustainable solutions a strategic lever.

Decision making in an evolving market is challenging, but as discussed, tools and strategies exist and are being employed to vastly elevate the transportation mentality beyond transactional thinking.

As these mentalities and strategies continue to adapt, it's important to recognize that yet another key piece of the puzzle is experiencing a fundamental upheaval. Underpinning the entire transportation industry is the need for energy to move goods—and today that energy is largely crude oil, and its corresponding refined products like diesel.

As is the nature with commodities markets like that of crude oil, profitability is king. This, however, cannot continue to be the case when profitability is secondary for consumers and investors. Priorities surrounding price are demonstrating a notable shift toward one major goal across stakeholders in the supply chain: sustainability.

## *The Environment Dominates Top Global Risks*

The World Economic Forum released its global risks report for 2020<sup>20</sup>, and for the first time in its fifteen years being published, all five top risks were climate-related. This is a stark indicator that shifts climate-related

sustainability initiatives to the forefront of many strategies.

As previously mentioned, evidence strongly suggests that the ultimate bottom line will no longer be the only driver for businesses, simply because it cannot be. In looking at a long history of sustainable policies and the evolution of corporate sustainability measures across business sectors, the trend is clear. Business, and specifically transportation, will not roll back current sustainability measures, rather, they will intensify.

Accenture released a report surveying over 1,000 CEOs about their opinions regarding sustainability in business in September of 2019.<sup>21</sup> The results are clear and suggest a large majority of business leaders expect green business trends to continue. The report states that 99 percent of "CEOs from companies with more than \$1 billion in annual revenues believe sustainability will be important to the future success of their business."

Alex Ricard, Chairman & Chief Executive Officer of Pernod Ricard, a European beverage company, is quoted saying, "As CEO, I need to recognize where consumers want us in ten years, and make those decisions today... I believe businesses that are only targeting profits, will die."

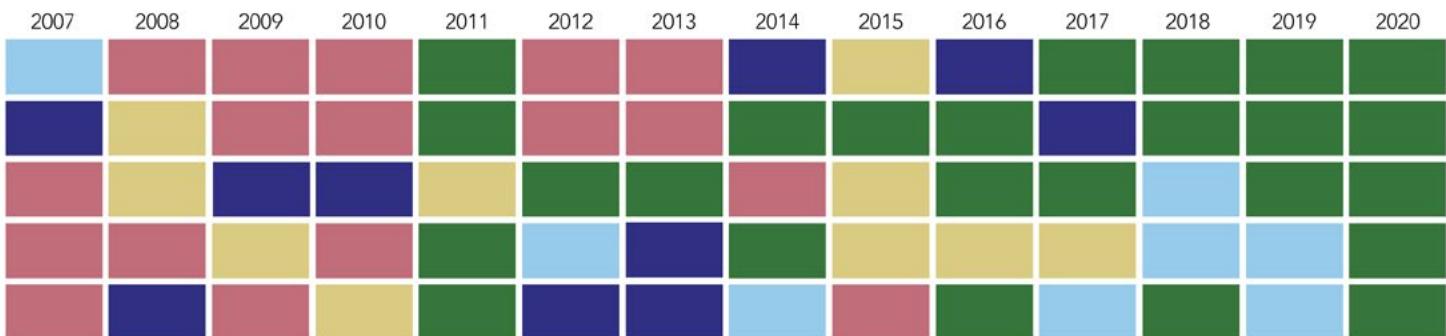
*“Organizations are going to have to dive more deeply into their supply chains to find initiatives to meet that demand—and the reality is that transportation will be in the crosshairs.”*

—Brett Wetzel

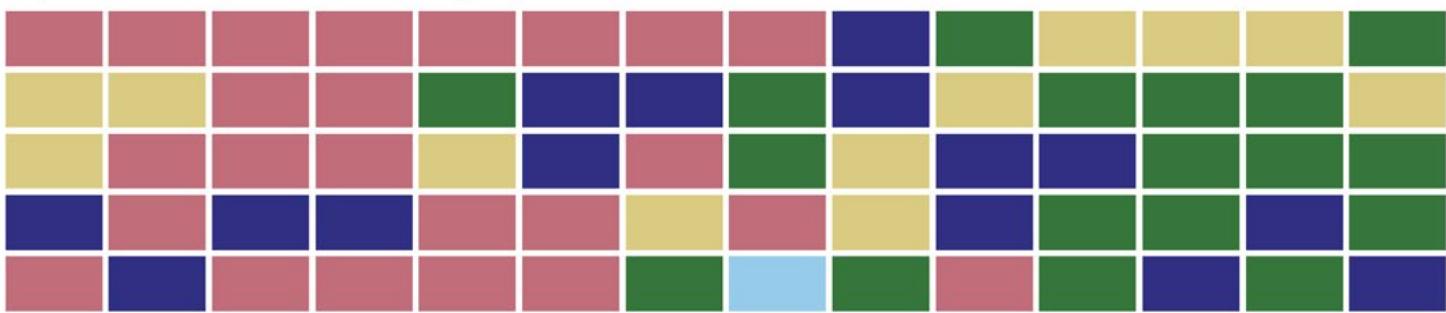


## The Evolving Risks Landscape, 2007–2020

### Top 5 Global Risks in Terms of Likelihood



### Top 5 Global Risks in Terms of Impact



Source: "The Global Risks Report 2020," World Economic Forum, 15th Edition. [www3.weforum.org/docs/WEF\\_Global\\_Risk\\_Report\\_2020.pdf](http://www3.weforum.org/docs/WEF_Global_Risk_Report_2020.pdf).

### *How will the sustainability focus impact the transportation industry?*

The 2010s manifested several tactile strategies that moved the needle on transportation emissions legislation. The decade started with limits on sulfur and other criteria pollutants like nitrogen oxides (NOx) in commercial diesel equipment, specifically truck and rail. Regulations did not stop here, and at the beginning of 2020 the maritime industry enacted regulations that significantly limited the allowable sulfur emissions of vessels on the open seas (known as IMO 2020).

Beyond legislation, advances in carbon policy highlighted the 2010s. The U.S. continued to increase the amount of renewable fuels in the transportation energy mix. Canada set a course on carbon pricing through 2022, which increases the cost of fossil fuels and incentivizes more environmentally friendly projects. Regional efforts also rose, as shown

by California's Low Carbon Fuel Standard, and other states and regions are looking to adopt carbon policies above and beyond the national standards.

But more so than policy or technology, consumers are often the most compelling driver of systemic change because the power of their demand influences the entire supply chain. To remain competitive in the evolving landscape of 2020, corporations must meet the shifting preferences for sustainable products—and transparency that proves it.

### *Transparency Fosters Trust Across the Supply Chain*

Transparency was a central tenet of the sustainability movement of the 2010s, because with transparency comes trust. Consumers want to know where their goods come from, who built them, what they are made of, and *how they got there*. As of now,

transportation tends to be a black box in terms of sustainability reporting, and much stands to be gained by opening transportation networks up for not only greater scrutiny, but greater visibility.

Breakthrough Director of Applied Knowledge, Brett Wetzel, says, “As consumers continue to demand cleaner products, even with the addition of premium pricing, organizations are going to have to dive more deeply into their supply chains to find initiatives to meet that demand—and the reality is that transportation will be in the crosshairs.”

He goes on to say, “We have seen this happen in other industries, and it’s manifesting in transportation more than ever before,” says Wetzel. “Not only are we seeing the emergence of technology that limits the carbon footprint of transportation—like electric vehicles and fuel efficiency technology for conventional vehicles—we are seeing the entire mentality start to shift.”

The sustainability wave has already hit other portions of the supply chain, and trends would suggest that transportation is next. Power generation has historically been one of the dirtiest emitting industries, but in the last decade, renewably sourced energy—like solar, wind, and hydroelectric—grew from 10 to 16 percent of the U.S. power generation mix. At the same time, coal use nearly cut in half from a 45 percent market share in

power generation to 23 percent in the same timeframe. To start 2020, over 70 percent of states have some sort of renewable energy target to clean up power generation.

It is now reasonable to believe that a similar trajectory for transportation will follow suit.

### ***Transportation is Entering the Regulatory and Consumer Crosshairs***

As of 2016, the transportation sector surpassed power generation in total CO<sub>2</sub> emissions. This puts a target on the back of transportation strategies because—now being the dirtiest emitting sector—they are not only a necessary, but crucial link in completing the sustainable supply chain.

Additionally, the impact potential is even higher for the medium and heavy-duty trucking sectors. These sectors have had the greatest concentration of growth in greenhouse gas emissions (GHGs) when compared to other areas of transport in the U.S.

To take it one step further, Wetzel says, “it is one of the few segments of the full journey of a manufactured good that has the potential to be net-neutral—or even net-negative when it comes to carbon emissions. Depending on where the source material originates, like from animal waste to create renewable natural gas, you can actually achieve a negative carbon intensity.” While diesel-powered drivetrains

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***“As CEO, I need to recognize where consumers want us in ten years, and make those decisions today... I believe businesses that are only targeting profits, will die.”***

—Alex Ricard

remain the norm across most shipper and carrier networks, natural gas and battery-electric solutions will become increasingly viable.

But merely shifting our focus on transportation is not enough to make this a reality. As has been illustrated throughout this journal, many aspects of the greater business climate are shifting. Simply making promises for a better tomorrow will fall flat without action.

### *Turning 2010s Promises into 2020s Execution*

On a macro scale, a single, actionable strategy must be set globally. Once alignment is found on one mutually shared target and roadmap, local execution can incrementally take shape.

A notable example of this is the Paris Climate Agreement, which was signed by 197 countries and ratified by 187 as of 2019. Its goal is to keep the global average temperature increase well below 2 degrees Celsius from pre-industrial levels, while also making efforts to move below a 1.5-degree increase. The execution of this agreement is then set by the countries themselves, through whatever

efforts they deem appropriate.

Government alone will not make the push towards sustainability. Technology will continue to accelerate the transition to a zero-emission future.

Many original equipment manufacturers (OEMs) feel the push for better fuel efficiency from their users. New model year vehicles have shown roughly three percent efficiency gains year-over-year in the last decade due to improvements in aerodynamics, engine design, and automated technology.

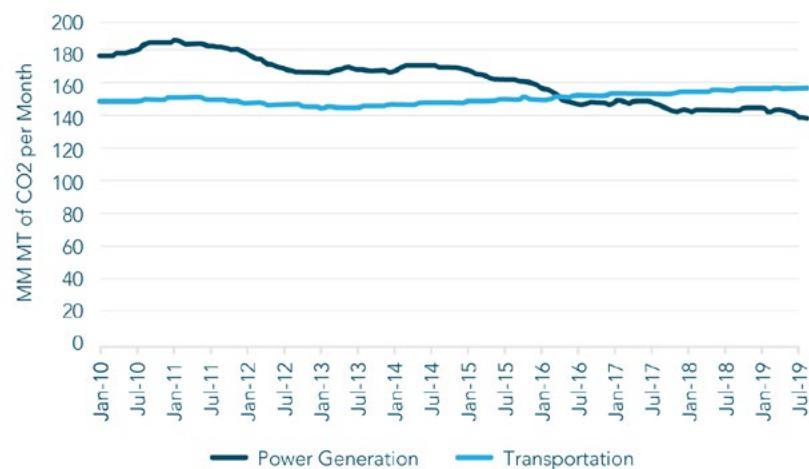
Add in the increased adoption of aftermarket technologies by well-managed fleets—like trailer skirts, auto-inflate tires, and tractor-trailer gap-reducers—and energy efficiency will continue to diminish demand for transportation energy in the decade ahead.

Additionally, the buzz of zero emission vehicles (ZEVs) generated in the past decade will begin to penetrate transportation. Battery-electric vehicles (BEVs) and hydrogen fuel cell vehicles (FCEVs) are catching headlines for both upstart companies and traditional OEMs across all vehicle classes.

**U.S. CO<sub>2</sub> Emissions by Sector**  
MM Metric Tons – 2018



**Total CO<sub>2</sub> Emissions by Sector**  
Rolling 12 Months, 1/2010 – 8/2019



Source: Energy Information Administration<sup>22</sup>

*“Not only are we seeing the emergence of technology that limits the carbon footprint of transportation... we are seeing the entire mentality start to shift.”*

—Brett Wetzel

## Examples of Transportation Lifecycle Transparency & Sustainability

### **AB InBev**

- Anheuser-Busch InBev, a multinational drink and brewing company, has a “seed to sip program” that works to limit empty miles, optimize mode choices, and implement low-carbon strategies to lower the impact of its transportation.

### **Patagonia**

- Patagonia, a niche outdoor clothing company, has an entire segment of their website and team dedicated to promoting “the cleanest line” documenting the full journey of their supply chain.

### **Nestlé**

- Nestlé, a multinational food and drink company, provides traceability of their products, often as far back as the farms from which their goods are harvested.

# Carbon-Neutral is the Goal, Carbon-Negative is the Solution

In January 2020, Microsoft launched a series of aggressive environmental initiatives that focus on mitigating the company's impact on climate change.

Today, the devastating effects of climate change are widely discussed. As scientific data and evidence continue to support the imminent dangers facing our planet, solutions to these problems are beginning to emerge.

The consensus among experts is that we must strive for net-neutral carbon emissions. This means that for all carbon (and other greenhouse gas pollutants) that humans emit into our atmosphere, we must have processes and initiatives in place to counteract an equivalent volume.

But organizations, like Microsoft, believe that we should think beyond simply accomplishing net-neutral emissions. In an article published on their blog, Microsoft's President, Brad Smith, writes, "those of us who can afford to move faster and go further should do so." That's why Microsoft is committing themselves to three monumental efforts to elevate their impact beyond the call of duty.

1

Microsoft plans to be carbon negative, removing more carbon than it emits directly and in its supply and value chains, by 2030, and remove all the carbon ever emitted by its operations and electrical consumption since its founding by 2050.

2

The launch of a \$1 billion climate innovation fund to in part "accelerate the global development of carbon reduction, capture, and removal technologies."

3

It announced a continued commitment to empower their suppliers and customers to understand and reduce their carbon footprints.

Microsoft has detailed plans and strategies in place to achieve these audacious goals—all of which are firmly grounded in data science and the use of their own unique approach to solving problems.

For more information about Microsoft's revolutionary commitment to the planet, visit their website:  
[blogs.microsoft.com/blog/2020/01/16/microsoft-will-be-carbon-negative-by-2030/](https://blogs.microsoft.com/blog/2020/01/16/microsoft-will-be-carbon-negative-by-2030/)

# ***“It takes courage, first of all. You have to be willing to take risks.”***

—Daniel Elliott

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Though the ramp-up to commercialization is not yet a reality in 2020, mostly due to the cost and maturity of new technologies, it is sure to take shape in the decade to come.

With policy and technology on a similar trajectory, the final frontier that will manifest sustainability-focused strategies is in independent organizational strategies. Your organization has the potential to usher in these changes proactively, before being forced by policy's hand. Anticipating the changes that we know are coming will not only save on costly reactionary measures in the long-run, but will position you with a competitive advantage that endures far beyond the 2020s.

Former Chairman of the Surface Transportation Board and Founding Partner for Daniel Elliott, LLC, Daniel Elliott says, “I do think the climate is relatively good for corporate change if someone wants to implement something. There won’t be as many regulatory hurdles in 2020. I don’t think that the present administration is interested in imposing anything regulatory that slows down change.”

To do this, collaboration outside of normal operational teams is critical. Not only will teams need to be created, but transportation leaders will need to mindfully and intentionally cross disciplinary lines to seek the expertise of their sustainability division, data science teams, and beyond.

Elliott goes on to encourage leaders: “It takes courage, first of all. You have to be willing to take risks. Especially with larger corporations that are beholden to the shareholders, sometimes corporations are looking more to the quarterly earnings as opposed to the long-term earnings. It really takes courage to look to that long term.”

## ***Will Sustainability Become an “On-Cost” Liability for Your Organization?***

Or will it be an asset that provides opportunity into the future? Both evidence and sentiment are clear that all sectors are being pushed toward greener solutions, which will fundamentally influence the way professionals lead organizations and create strategies moving forward.

Transportation is likely the next frontier in the sustainability landscape. Expect 2020 to jumpstart a decade of aggressive emissions abatement stemming from consumer demands, policies, and corporate promises that will inevitably trickle down and affect day-to-day operations and decision-making.



# *Key Takeaways:*



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Regardless of which sector instigates the change, business leaders will need to shift their focus to encompass more than just stakeholder profits. These changes will require organizations to prioritize enduring sustainability strategies.

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As regulations and consumer demands become more stringent, investments made early in alternative energies, transparent supply chains, and emissions abatement will become increasingly viable and necessary in the long-term.

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The climate is ripe to create systemic changes in your organization and recognizing that these changes will not likely be reduced throughout the 2020s will differentiate the laggards from the innovators.

*“Trucking is the lifeblood of this country, all you have to do is open your eyes and drive down the interstate and you can see that. I don’t know what the future looks like, but you get a sense that change has to happen.”*

—Johnnie Dobbs

## Chapter 5

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# Creating Enduring Strategies: *The Shift Towards Collective Optimization*

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Looking to 2020 and beyond, the only constant will be change. Industries that embrace this ambiguity and collectively vision-cast will elevate their opportunities for optimization.

Throughout this dialogue a sustaining sense of passion laced each interview and analysis. The year 2020 has the potential to be monumental, and for the transportation industry, much is left uncertain.

As Johnnie Dobbs says, “Trucking is the lifeblood of this country, all you have to do is open your eyes and drive down the interstate and you can see that. I don’t know what the future looks like, but you get a sense that change has to happen.”

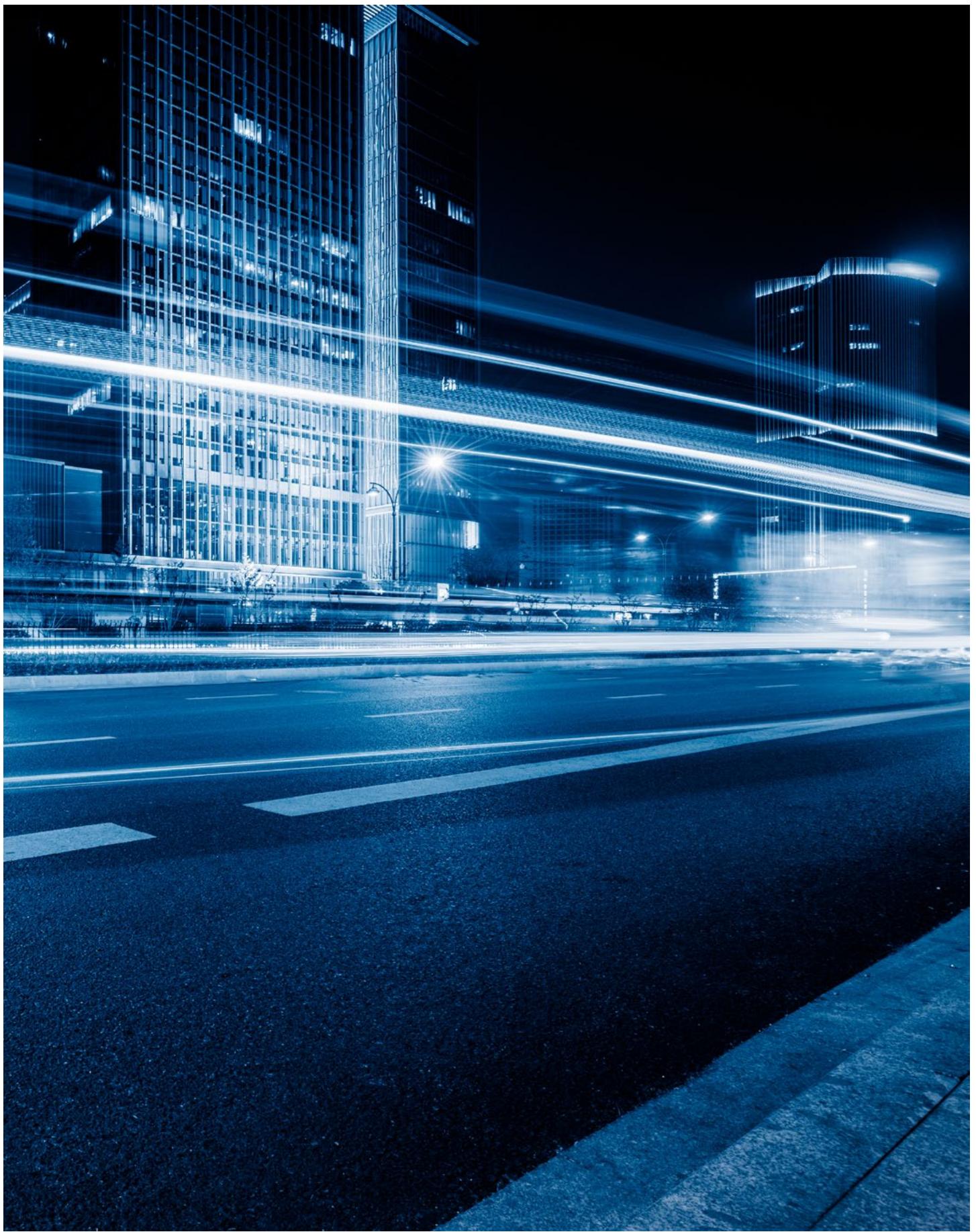
### *The Rules of Business are Changing*

The goal is becoming much more than a bottom-line, or quarterly revenue statement. The viability of our planet will be a central tenet of strategies in the 2020s. The exponential growth of data processing power will allow us to iterate solutions to more

complex problems faster than ever before. Expertise will remain valuable, and the discernment and intuition of leadership will be integral to navigate these waters.

Previously, humans needed technology to not only survive, but to thrive and innovate. Technology was used to amplify human cognitive potential because our ability to ideate was finite. Now we continue this cyclical evolution by entering an age where the technology once again needs humans. Adhering to this shift will differentiate the innovators from the laggards.

With this new, diverse playing field inundated with software, digital tools, and on-demand visibility, shippers’ options are diversifying. As such, it is important to think critically about which solutions are appropriate for your strategy today, and will continue to be in the



future. But amid the stirrings of headlines and online buzz, fads, and trends will come and go. Truly understanding what delivers value to your team amidst the noise of the industry can be difficult.

Conagra Brands' Senior Director of Transportation, Brian Stoufer discusses how his team identifies which solutions are right for their 2020 strategy. He says, "Deploying technology because it is a 'hot topic' is not sustainable."

#### ***Know Your Gaps and Find Enduring Strategies***

"Our experience is that if you understand what you do really well, you will know what your gaps are. If you can then challenge your perceptions of the best way to solve problems with market or benchmarking data, you will be able to apply innovation to fill the gaps and amplify what you do well," says Stoufer.

To do so in a way that amplifies the power of data, the changes across the industry, and the value of your human capital, one key fact is important to keep at the forefront: transportation is cyclical.

Stoufer says, "Having people that understand or have been through cycles is incredibly

helpful in understanding what conditions and solutions are 'here to stay' and which are cycles or fads." He goes on to say, "those cycles can create panic or a false sense of security, depending on the business climate, and being able to manage through those highs and lows makes adopting technology or changing processes easier and more prescriptive."

The ebb and flow of this cycle makes it difficult to put a long-term value on the merit of a specific innovation. Will it truly reduce cost or optimize our network operations? Or is it simply filling a newly created gap due to the evolution of transportation?

The answer to these questions is looking at robust, complete, and collaborative datasets. When considered in a vacuum, any one shippers' data can only tell a limited story. That story cannot bear optimal results, no matter the degree of expertise analyzing it. Creating opportunities to utilize a vast data landscape will provide what most tools on the market and teams in the industry lack: context.

"Not everyone is a data scientist or able to see every transaction. It is about making it easier to execute as that is what ultimately matters," says Stoufer.

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***Technology was used to amplify human cognitive potential because our ability to ideate was finite. Now we have entered an age where the technology once again needs humans. This shift will differentiate the innovators from the laggards.***

***“Part of the reason why I do what I do, not because I had an opportunity to make money in the world, but I feel like we have an obligation to give back. Our mission is to enable everyone on the planet. If we have these resources, we should give back and try to accelerate certain areas in the world.”***

—John Kahan

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“It can be challenging to get everyone on board with some of these changes because transportation has a long history of ‘that is how we have always done it.’ But the reality is that everyone needs to be on board with the fact that transportation is evolving and changing and what used to work may not anymore.”

#### ***The Trends are Not New; Our Ability to Innovate Beyond Them Is.***

Strategies are becoming more interdisciplinary, more intuitive—albeit complex—but employing them effectively will require fundamental adaptations from today’s shippers, carriers, and the broader business climate.

All of this to say that transportation is doing more than shipping freight from point A to point B. Transportation is part of a far greater ecosystem that is intricately entwined with the development of technology, the economy, the global political atmosphere, and the daily lives of consumers.

As Chief Data Analytics Officer at Microsoft, John Kahan, states it best:

“Part of the reason why I do what I do, not because I had an opportunity to make money in the world, but I feel like we have an obligation to give back. Our mission is to enable everyone on the planet. If we have these resources, we should give back and try to accelerate certain areas in the world.”

Transportation is teetering on a precipice that will fundamentally change the way we solve problems and do business. Stakeholders that maximize the power of data and technology with intuitive human capital will realize a much broader vision for the future.

This vision looks far beyond the movement of goods.



## Meet the Experts

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### ***Johnnie Dobbs***

**Retired, Executive Vice President of Logistics, Walmart U.S.**

Johnnie Dobbs joined Walmart U.S. in 1990 and held leadership roles across the company. He was promoted to Executive Vice President of Logistics in 2006 with operating responsibility for general merchandise, fashion, grocery, Sam's Club, import, specialty distribution centers, and domestic and global ocean transportation. He previously held leadership positions on boards at Tennessee State University's College of Business for Supply Chain Management and the University of Arkansas Supply Chain Management Research Center. Dobbs served in civilian logistic-related positions for the United States Army beginning in 1978. He retired in 2013, but continues to remain engaged, serving on the Board of Directors for US Venture, Channel Control Merchants, and is an independent supply chain consultant.



### ***Daniel Elliott***

**Founding Partner, Daniel Elliott PLLC**

Daniel Elliott was the presidentially appointed Chairman of the U.S. Surface Transportation Board (STB), an independent economic regulator of the freight railroad industry, from 2009-17. As Chairman, he led the agency to five consecutive Best Places to Work in the Federal Government awards. He has testified before Congress, devised rail economic policy, and litigated rail labor cases with an international rail/bus labor union for sixteen years. He transitioned to private practice in 2017, becoming a Founding Partner at Daniel Elliott PLLC, where he handles rail issues for shippers. He graduated from the University of Michigan in 1985 with a major in political science and the Ohio State College of Law in 1989 with a JD.



### ***Linnea Gandhi***

**Adjunct Assistant Professor of Behavioral Science, University of Chicago Booth School of Business**

Linnea Gandhi is an Adjunct Assistant Professor of Behavioral Science at the University of Chicago Booth School of Business, coaching students to understand and design for the nature, causes, and implications of human decision-making patterns. She extends her teaching into the private sector through her consulting firm BehavioralSight. Her teaching, client work, and writing focus on going beyond biases and their practical applications, to the methodologies of measurement critical to professional and personal decision-making. Past and present academic collaborators include Chris Bryan and Richard Thaler at the University of Chicago Booth School of Business, as well as Daniel Kahneman at Princeton University.



## **John Kahan**

### **Chief Data Analytics Officer, Microsoft**

John Kahan is a Board Member of US Venture, Inc., the Chief Data Analytics Officer, reporting to the President of Microsoft and the Founder and President of the Aaron Matthew SIDS Research Guild of Seattle Children's Hospital. Kahan is a data-driven leader with 33+ years of data science, worldwide business, and technology transformation experience across Microsoft and IBM. In his current role at Microsoft, he is responsible for infusing data science and AI to address the world's great challenges. e.g., promoting sustainable use of the planet's resources, improving opportunities for people with disabilities, protecting human rights, strengthening humanitarian assistance, improving the health of people and communities and increasing the capabilities of the world's NGOs. Kahan and his wife, Heather, are proud parents of four girls and an amazing grandson. He is an avid, photographer with two published books, loves traveling, spending time with family, and giving back.



## **Doug Mueller**

### **CEO and President, Breakthrough**

Since joining the organization in 2007, Doug Mueller advances all aspects of the business through his diverse background in energy management, supply chain, and transportation. Mueller received his Bachelor of Science in Business and Psychology from Carroll University and his Master of Business Administration from the University of Wisconsin-Oshkosh. His career, spanning more than 30 years, is highlighted by successful leadership roles in client development, relationship management, solution design, business transformation, and leading change. Mueller is actively engaged in his community as a member of the Board of Directors for The Automobile Gallery and Brown County UnitedWay. Additionally, he serves on the Board of Trustees for Carroll University.



## **Brian Stoufer**

### **Senior Director of Transportation, Conagra Brands**

Brian Stoufer has over 20 years of experience in the transportation and warehousing industry. He has been with Conagra Brands for 17 years, currently as the Sr. Director of Transportation. Stoufer leads a team responsible for procurement, planning and management of over 400,000 loads annually across multiple modes and over 200 origins. With Stoufer's leadership, his team has achieved reporting and process improvements enabling productivity never achieved before with his organization. Prior to Conagra Brands, Stoufer held several positions within the Sprint's supply chain organization (Sprint North Supply) primarily focused on network optimization and process improvement. Stoufer holds a degree in Transportation Logistics from Iowa State University.



## **Brett Wetzel**

### **Director of Applied Knowledge, Breakthrough**

Brett Wetzel joined Breakthrough in 2013, bringing an interdisciplinary background to deliver distinguished service to Breakthrough clients throughout his career. Starting in a Client Services role and then transitioning to Applied Knowledge, Wetzel provides insight into industry technology advancements, market dynamics, alternative energies and emissions and carbon policy. He enjoys educating clients and team members, simplifying complex ideas into actionable items, and finding ways for clients to reduce cost and emissions. He leads a team of researchers that has been published in Bloomberg, Freightwaves, American Journal of Transportation, and beyond. Prior to Breakthrough, Wetzel was a high school mathematics teacher and received a Bachelor of Science in Math Education from University of Wisconsin-Stevens Point.

## Executive Summaries

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### Introduction

#### **The Transportation Precipice: Ushering in a Decade of Innovation**

The year 2020 will balance the execution of daily strategies with the strategies looking at the decade ahead. More than ever before, technology, markets, leaders, and governments are faced with a new way of thinking about business. Transportation is not immune to these changes and will need to adapt strategies to follow suit.

Historic trends and events have shaped the markets we are operating in today, and casting our gaze beyond the imminent challenges of today will be necessary to remain viable and competitive in the evolving transportation landscape.

### Chapter 1

#### **Leading Change Through a Paradigm Shift: Uniting People & Process**

Underlying any fundamental shift across industries lies the need to maintain and develop talent to navigate it. No matter the scope of transformation facing your strategy, organization, or purpose, cultivating loyalty and ownership across all levels of a team will make the actualization of your vision possible.

By ensuring strategic processes give appropriate attention to the buy-in and ownership of teams at every level, organizations will be able to hold exceptional talent constant amid disruptions in the industry.

### Chapter 2

#### **Amplifying the Value of Artificial Intelligence: The Power of Collaborative Data**

To navigate changes, an organization's reliance on data will not only ground its operations in market realities but will open unlimited optimization potential. Data utilization will evolve to look at much broader system dynamics in 2020 and beyond, and to do this, we must recognize the need to diversify stakeholders and partnerships.

The potential of tomorrow's processing power will change the way we use and share data today. Silos of data are not the future, and collaboration will predominate the data science landscape.

### Chapter 3

#### **Thinking Algorithmically: Better Strategic Choices Amidst Noise**

The evolution of problem solving will eliminate legacy ways of doing business. The transportation industry has a history of leaning on hard-won experiences, past perceptions, and gut instincts. While there are many merits to leveraging these stories, the development of more sophisticated data-based tools and analyses will validate or refute those ideas.

Understanding how to recognize and eliminate noise in decision making will elevate the quality and prescriptiveness of strategic choices.

### Chapter 4

#### **Executing on Promises: The Future Role of Sustainability in Corporate Strategy**

As simultaneous changes take shape across industries, challenges, and leaders, the question becomes, "what are we all working toward?" While the answer to this may look different depending on who you ask, the overarching theme is that business is no longer about the bottom-line.

The need for more sustainable solutions to combat climate change is shifting the broader focus away from revenue gain and stakeholder priorities to think more holistically about the impact businesses are having on the full supply chain.

### Chapter 5

#### **Creating Enduring Strategies: The Shift Towards Collective Optimization**

Looking to 2020 and beyond, the only constant will be change. Creating long-term strategies that are agile enough to navigate ambiguity is a major challenge facing leaders today. To do so, organizations will need to find the right partners, understand their potential, and recognize their ultimate goals—beyond even a ten-year outlook.

Those who collectively vision-cast beyond the foreseeable and tangible future will remain on the leading edge—rather than the bleeding edge—of a disrupted industry.

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