



Odyssey Logistics Research Brief

AI Meets Critical Intelligence



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AI Meets Critical Intelligence



The initial hype

around artificial intelligence (AI) has evolved into a more measured understanding of the technology. Its transformative impact is certain, and its full impact is expected to unfold at an accelerated pace, but true AI progress will require more than the technology itself. The expertise and critical intelligence of those who guide its application will be integral to its lasting significance.

As practical uses for AI continue to gain traction, the logistics and supply chain industry faces a brief window to adapt and prepare for what will undoubtedly be a seismic shift in how business is conducted.

The reality is the industry continues to reel from the effects of the pandemic and ongoing geopolitical concerns. In boardrooms across the world, talk of more resilient global supply chains continues in earnest, as recent disruptions have proven conclusively the importance of an agile supply chain strategy. Ultimately, the promise of AI is the promise of massive productivity unleashed. And to shippers and carriers deeply concerned about fuel prices, route planning, and load consolidation, this potential to tighten efficiencies from nearly every angle is supremely attractive.

Our last study in 2020 found shippers struggling to get better visibility of the supply chain during the pandemic and find smarter ways to automate cost management.

Since then, the rapid progress of AI has significantly reshaped many industries. But its broader acceptance faces a significant hurdle: **trust**. The opacity of AI decision-making and the lingering risk of unintended outcomes have created skepticism in many logistics leaders.

This white paper explores how pairing AI with human intelligence can bridge the trust gap. By combining deep industry knowledge with strategic thinking around data curation, we can guide future developments with a framework that encourages trust in AI and ensures its successful application across supply chains and logistics.

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The AI Factor

Just 25%

of respondents are using new applications or insights from AI in their organization.



“I don’t trust it.”

—Respondent, on AI

According to respondents, AI’s current applications in logistics include route optimization, greenhouse gas emission information, and TMS integrations.

Among the broader pool of respondents, AI was acknowledged for its potential to enhance freight matching and operational efficiency, along with enhancing route optimization.

But there was also a strong note of distrust of AI among many respondents. Some disclaimed its relevance to their work categorically, while others noted labor challenges they expect it will pose.

While these concerns have merit, the apprehension is at least somewhat a matter of tradition within the industry. Logistics has typically been slow to adopt new technologies. And the SaaS freight tech boom over the last decade hasn’t always helped — many promises about

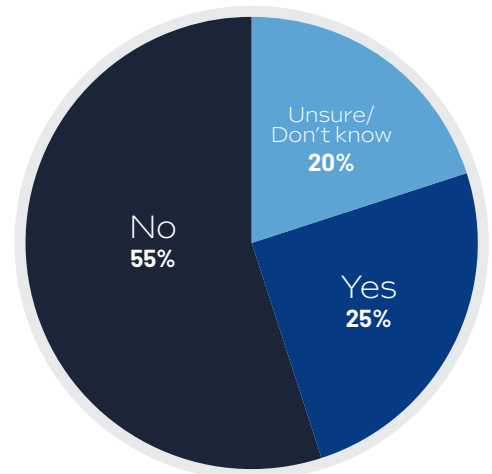
operational transformation ended up vanishing into thin air. But AI is not a discrete software intervention destined to fizzle out after a brief period of experimentation. It’s a technology that can be applied almost universally across operations to make them exponentially more efficient.

Nevertheless, it’s clear logistics is working through an AI trust problem. This reflects broader trust issues that have come to the fore with AI’s recent (over)exposure. Edelman, shared by Axios, notes that trust in AI has declined over the last five years from 61% to 53%, and in the United States, trust dropped from 50% to 35%.¹

This trust problem gestures to the need for a broader conversation about AI: how will logistics pair human oversight with this technological innovation?

Survey Response

Are you currently applying any new applications or insights in your organization?



¹<https://www.axios.com/2024/03/05/ai-trust-problem-edelman>

The Generational Shift in the Industry

52% support an approach to AI driven by humans, supported by AI tools and insights.



The industry will have to navigate AI adoption carefully, taking full advantage of its productivity and efficiency possibilities while applying critical intelligence and age-old wisdom on how to effectively move freight and serve customers. In many ways, the AI revolution could not have come at a more opportune moment. Why? Because the current window of adjusting to AI before it becomes table stakes coincides with another window of opportunity.

Logistics is undergoing a generational shift. By 2029, the youngest baby boomer will be 65, and the elder members of Gen X will be on the verge of retirement. Concurrently, millennials and Gen Z (the latter being the first generation born during the existence of the Internet) are rising through the industry's ranks.

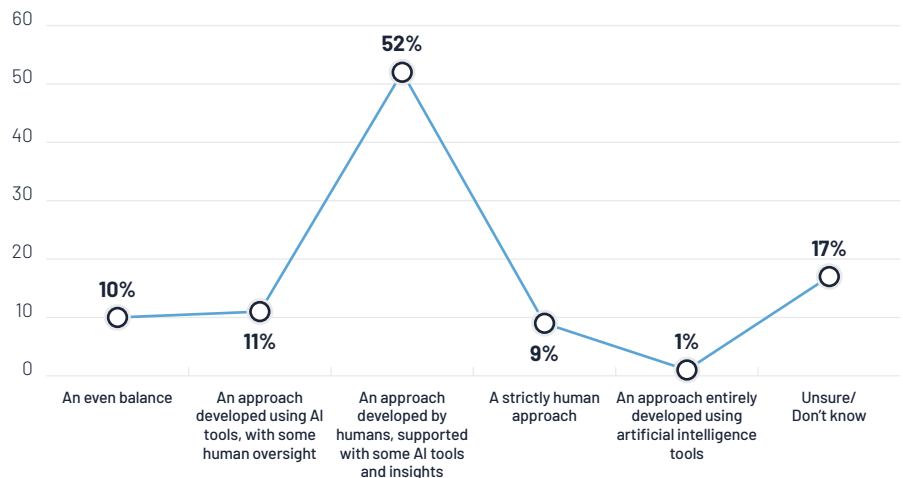
During this short moment of generational equilibrium, two values exist side by side: institutional knowledge and experience on the one hand, and digital facility on the other.

The former includes immeasurably valuable industry and systems knowledge that isn't easily replicated with a simple algorithm. The latter comprises natural ease with technology that can facilitate if not automate certain operations across the board.

Leading up to 2029, there is a critical opportunity for a two-way mentorship to occur that could help shepherd a sensible and sustainable path for AI adoption – one guided by both digital literacy and essential deep knowledge on the workings of the industry.

Survey Response

What do you believe is the proper balance of artificial intelligence and human contributions regarding strategic planning within the supply chain?

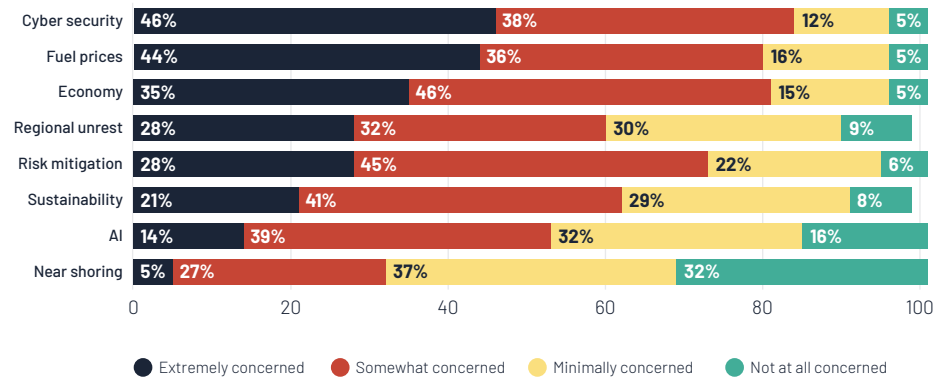


Cybersecurity: A Wakeup Call

46% of respondents now prioritize cybersecurity over traditional concerns such as fuel prices.

Survey Response

Regarding your business, please rate your level of concern with each of the following:



In this survey’s history, fuel prices have typically been the top concern among respondents. This year, for the first time, cybersecurity took its place, edging it out as the number one priority by two points, topping other important considerations like the economy writ large.

This shift in priorities indicates that despite its slowness in technological adaptation, logistics continues to digitalize. While this digitalization comes with new opportunities, this pronounced

concern about cybersecurity shows the unique and novel risks that it also brings—risks that many professionals may not feel adequately prepared to manage, despite their commitment to managing new vulnerabilities.

As more and more cyberattacks in the logistics industry end up in the news, professionals are starting to realize that cybercrime is not an unlikely occurrence but a reality that requires preparation and strategy.

Respondents noted that they had been hearing more stories about cybercrime, and some even had personal connections to it. In general, logistics cybersecurity systems are not as resilient and developed as they could be. The industry’s slow rate of tech adoption has also made digital literacy more sluggish, introducing greater risk of data loss due to insider threats such as human error and phishing scams.

Among respondents, cybersecurity concerns coalesced around a few specific themes:

AI and cybersecurity	Business continuity	Data breaches	Ransomware	Challenges in cybersecurity response
AI has a unique ability to expose vulnerabilities in security systems.	Cyberattacks could have a catastrophic effect on operations—e.g. ability to receive orders, ship freight, and conduct normal business activities.	Breaches cause business disruptions.	Data being held hostage poses significant financial risk.	Cyberattacks are getting more sophisticated and harder to prevent.
AI could exacerbate the growing, unregulated criminal presence in the industry leading to massive increases in attacks.		Breaches compromise customer data, causing reputational threats.		Reliance on cloud-based services introduces vulnerability.
		Compromised shipping routes could increase criminal attacks.		

Shipping Practices: Efficiency and Preferences

70% of respondents primarily rely on Less-than-Truckload (LTL) to move their freight.

Preferred modes of shipping have remained mostly constant since our last study in 2020, with LTL polling at 70%, followed by truckload at 66% – indicating a strong industry-wide preference for trucking.

Despite their cost effectiveness and sustainability advantages, intermodal and rail use have also stayed flat at 22% and 21%, respectively.

This heavy reliance on trucking may be a liability for shippers hoping to increase the resilience of their networks. Research has shown how the rail industry was a central component to supply chain resilience during the COVID-19 pandemic, for example, allowing for adaptability in the face of changing business and consumer needs.² Intermodal shipping is inherently more resilient simply because there are more options to choose from in moving freight from A to B.

A large majority of shippers (69%) noted that cost management was a concern for their company (the next largest concern was route optimization at a much lower margin of 40%). When asked about managing shipping costs, respondents said that they were most likely to try to negotiate better shipping rates (63%), keep a closer watch on shipment status visibility (44%) and try to consolidate a higher percent of shipments (38%).

38% of respondents hope to reduce their costs by adopting more efficient shipping routes, while 35% will strive to improve load consolidation. AI was proposed by several respondents as a way to improve both of these, as well as cost management generally. These respondents noted its ability to tighten efficiency across the board.

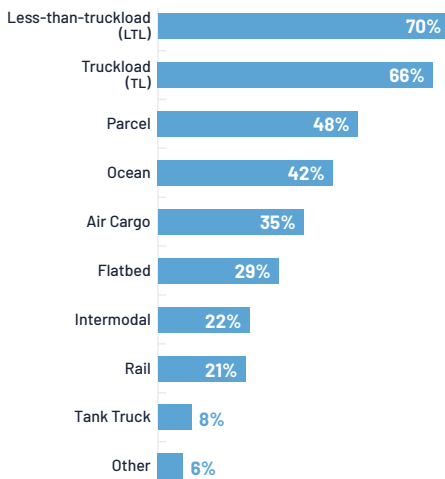
Fuel costs also remain a problem that affects several parts of operations. At the most basic level, expensive fuel translates to higher shipping costs in general. Not only are fuel prices high, but they're also volatile. Economic uncertainty combined with regional conflicts such as those in the Middle East have made gas prices unpredictable – and respondents are worried that these conflicts will lead to skyrocketing prices. Recent attacks on freight ships in the Red Sea by Houthi authorities have also made shippers skittish, forcing them to find alternate routes and affecting fuel prices in turn. One respondent hoped that AI's potential for route planning would not only optimize efficiency but safety too.

With escalating fuel costs and geopolitical challenges affecting global supply chains, human intelligence paired with the power of AI-driven route planning will continue to become increasingly crucial. Human insights into geopolitical nuances and logistical complexities augment AI's data-driven capabilities and can foster smarter decision-making to enhance both efficiency *and* safety. This balance could better equip supply chains to navigate the unpredictable effects of regional conflicts and economic instability.

Could this human-AI partnership be the key to navigating global supply chains during turbulent times?

Survey Response

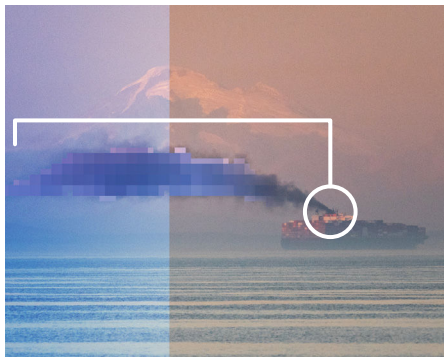
What shipping modes do you primarily use?



² <https://www.sciencedirect.com/science/article/pii/S2210539522000128>

Sustainability Concerns Gaining Ground

AI is already being applied to the analysis of greenhouse gas emissions.



The industry continues to grapple with adopting sustainability as a core value. Overall, it is moving towards more sustainable practices, albeit slowly, while simultaneously exploring the role of policy and regulation in shaping more sustainable outcomes.

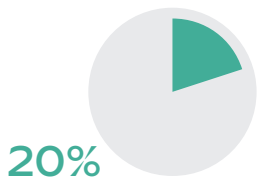
37% of respondents noted that sustainability will only influence their purchasing decisions if the more sustainable option is equal in price to others, while 18% stated that sustainability doesn't factor into their decision-making at all. These figures reflect both some lingering skepticism around the importance of sustainable practices and the impact of economic uncertainty on the industry's 'cost is king' mentality.

On the other hand, a growing cohort of logistics professionals is prioritizing sustainability. This shifting outlook

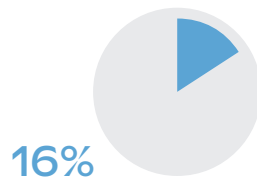
affects purchasing decisions and extends into strategy. 20% of respondents noted that, within reason, they will always choose the more sustainable option regardless of price, whereas 16% stated their willingness to pay a small premium (i.e. less than 10%) for a more environmentally friendly purchase. 20% track sustainability KPIs, 18% source sustainable materials, and 37% think about sustainable transport options. Not only is this better from an ESG perspective, but it also makes hard business sense: 35% of respondents noted that their customers are demanding better sustainability practices from them.

Amid growing demand, AI's capacity to handle complex data inputs is proving invaluable – even more so when paired with human expertise. Reflecting this trend, one respondent noted that they were already using AI to help analyze greenhouse gas emissions. In this setup, AI ensures compliance in reporting, while human expertise shapes the strategy. This combination ensures that environmental initiatives continue to trend away from simply meeting standards, which helps companies align their goals with both purpose and profitability.

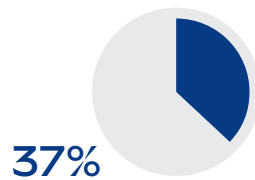
Survey Responses



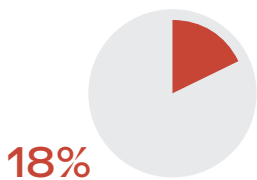
Always choose sustainable option regardless of price, within reason



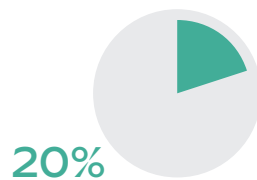
Willing to pay a **small premium** for more environmentally-friendly option



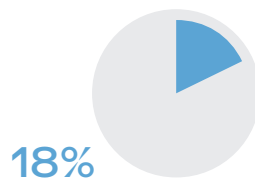
May choose sustainable option **only** if equal in price to others



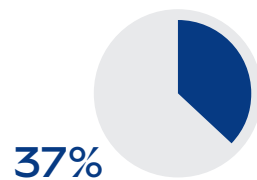
Sustainability **not a factor** in decision-making



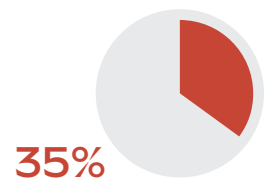
Track sustainability KPIs



Source sustainable materials



Think about sustainable transport options



Note that customers are demanding better sustainability practices from them

Resilience Through Sourcing and Technology

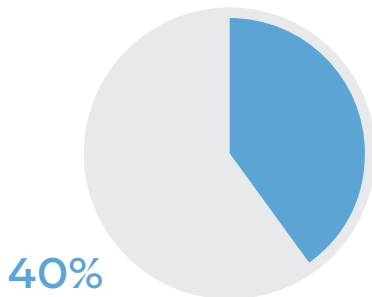
17% of respondents stated that emerging markets have become extremely important in their global sourcing strategy, with 51% choosing Asia as a channel for growth.

In the wake of the pandemic, supply chain resiliency became the logistics watchword. As such, some shippers are turning to emerging markets—mostly in Asia, but also South and Central America—to help diversify their source inputs. In fact, 40% of respondents shared that they had worked to increase their stable of suppliers after the pandemic.

But the main strategy for increasing resilience has been technology upgrades, with half of respondents reporting it as a strategic priority. It seems that the industry, chastened by the setbacks

experienced during COVID, is at last working to correct its tendency for slow tech adoption. And while some skepticism around its utility and trustworthiness remains, AI lies at the frontier of this strategy. Its predictive and prescriptive analytics capacities seem likely to refine forecasting to a near-science, while McKinsey³ predicts its use in inventory control can reduce carrying costs by 20% and decrease stockouts by 50%. Efficiency gains like these will translate to a more resilient global supply chain.

Survey Response



40%

Worked to increase their stable of suppliers after the pandemic



51%
choosing Asia as a
channel for growth

³ <https://www.mckinsey.com/capabilities/operations/our-insights/ai-driven-operations-forecasting-in-data-light-environments>

Looking Ahead

The future is upon us.

How will we shape it?

As the industry continues to stabilize after the pandemic, logistics professionals are looking to tighten their operations through every means at their disposal. As cost management looms over their heads, they also find themselves faced with cybersecurity concerns, dizzyingly high fuel prices, an uncertain economy, and sustainability questions.

Increasingly, professionals are trying to leverage new technology as a leg up out of the hole. At the same time, leaders recognize that adopting new tech can't come at the expense of hard-won, human insights on how the industry functions.

In these conditions, AI has emerged as a promising, but complicated partner. The responses from our survey have revealed a broad range of dispositions toward AI, from all-out embrace to total rejection. But the clearest call is for a middle way: taking advantage of the many opportunities it offers while still retaining human oversight, and a human touch.



This is a tricky tightrope to walk. Doing so will require human cognition – and that means fresh perspectives as well as wisdom.

The demographic mix found in the current logistics workforce has created an opportunity to combine the two and get the best of both worlds. Pairing the digital facility of millennials and Gen Z-ers with the expertise and experience accrued by older generations may be the

safest way to navigate AI – one that reaps its tremendous benefits while not losing sight of what it means to be a logistics company.

The window of opportunity is narrowing – and AI will continue to advance at breakneck speed. While we are still on the precipice of full-scale AI adoption, we are already beginning to teeter on its edge. What's needed is a balance between AI and critical intelligence.

Methodology

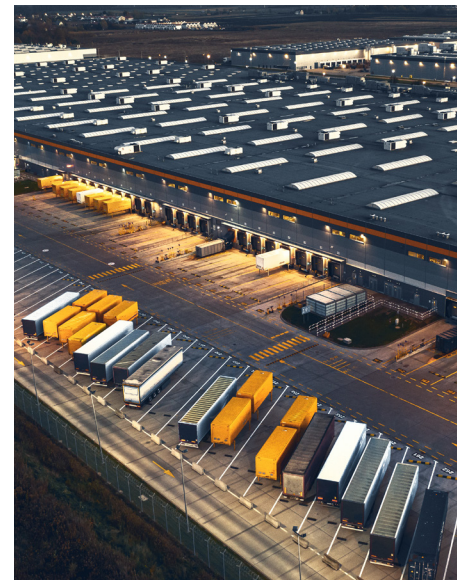
Odyssey commissioned the Peerless Research Group to conduct a research study of qualified shippers in the first quarter of 2024.

The required qualifications were personal involvement “in the management of transportation, trade, warehousing, inventory or any other logistics related function for either their organization or for others.” The survey was conducted by email and received 145 qualified responses.

Of those qualified responses, the audience profile broke down as follows:

Job title or function	
Corporate/Divisional Manager	12%
VP/General Manager	17%
Logistics/Distribution Manager	15%
Transportation Manager	8%
Warehouse Manager/Supervisor	5%
Supply Chain Manager	3%
Information Technology Management	3%
Operations Manager	8%
Purchasing/Procurement Management	5%
Other	25%
Total	145

The margin of error for all survey data is +/- 7%



Corporate Headquarters

Odyssey Logistics
100 Reserve Road
Danbury, CT 06810

203-448-3900 TEL
866-487-7481 TOLL-FREE
odysseylogistics.com