

LogiSYM

The Magazine for Supply Chain Executives

MAY 2026

www.LogiSYM.org

THE TRADE-OFF THAT NEVER EXISTED

PG 9
BY MARIAN TEMMEN

BEYOND EFFICIENCY: ALIGNING ESG, COMPLIANCE, AND PERFORMANCE IN LOGISTICS

PG 14
BY DR. SHEREEN NASSAR

WHEN NATURE SETS THE TERMS: LOGISTICS STRATEGY IN A CARBON-CONSTRAINED WORLD

PG 22
BY WOLFGANG LEHMACHER



The Official Journal of The
Logistics & Supply Chain
Management Society

COST, SPEED, AND SAF IN AVIATION'S CHANGING EQUATION

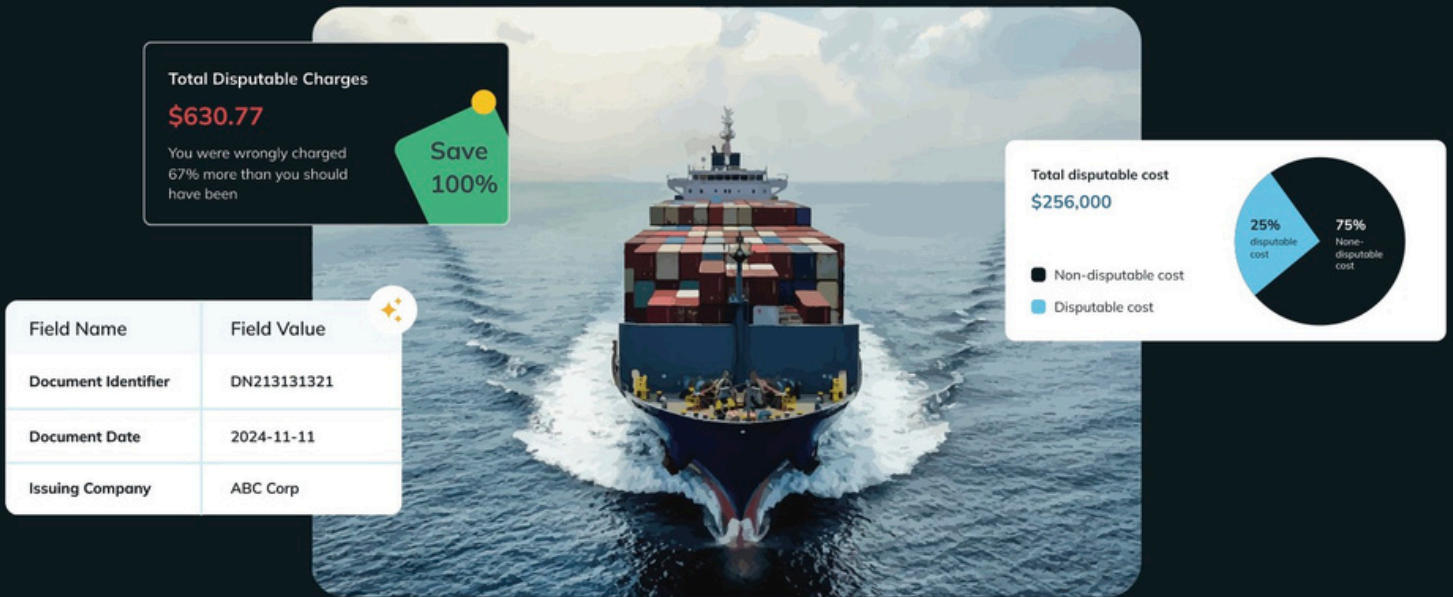
PG 30
BY FOX CHEN

BALANCING COST, SPEED, & SUSTAINABILITY: SUSTAINABILITY INTEGRATION AS SYSTEM IMPERATIVE

PG 39
BY KIM WINTER

BALANCING COST, SPEED, & SUSTAINABILITY: SUSTAINABILITY INTEGRATION AS SYSTEM IMPERATIVE





You're Probably Overpaying for Freight

Most companies miss invoice errors. Portcast's AI-powered Freight Audit finds them so you can save time and money.

- Freight invoices are complex and error-prone. Manual checks are slow, inconsistent, and often miss hidden overcharges.
- Portcast's AI-powered freight audit solution automatically verifies shipping invoices, flags discrepancies, and streamlines dispute resolution.

Key Benefits



Cut Audit Time by 10x



Unlock up to 30% Savings



Enable +95% Touchless Processing

See how much you're leaving on the table.

Visit portcast.io/freight-audit to get started.



9



22



14



30

Contents

- 4 President's Message



39

Articles

- 9 The Trade-Off That Never Existed
- 14 Beyond Efficiency: Aligning ESG, Compliance, and Performance in Logistics
- 22 When Nature Sets the Terms: Logistics Strategy in a Carbon-Constrained World
- 30 Cost, Speed, and SAF in Aviation's Changing Equation
- 39 Balancing Cost, Speed, & Sustainability: Sustainability Integration as System Imperative

*EDITORIAL MESSAGE****From the Editor***

Welcome to the May 2026 edition of LogiSYM Magazine, and our theme this month of "Balancing Cost, Speed, & Sustainability: Sustainability Integration as a System Imperative."

Logistics & Supply Chain leaders can no longer treat cost, speed, and sustainability as separate agendas; they collide every day on warehouse floor and transit lanes, and in the control towers and orchestration layers we increasingly use for visibility. As regulations tighten and customers demand proof, not promises, emissions data, ESG reporting, and green compliance have become part of the operational plumbing for any provider serving multinational supply chains. At the same time, the old linear "take-make-dispose" model must change, companies must think in circular terms right from origin: designing products, packaging, and flows for reuse, repair, and recovery. This edition looks at how the industry is reengineering networks, assets, and partnerships to keep service fast, costs under control, and carbon on a downward curve - treating sustainability as a system level design principle, not an afterthought.

This month, five contributors tackle the "impossible triangle" from different angles. Marian Temmen challenges the myth that greener automatically means slower or more expensive through his most thought-provoking article. Dr. Shereen Nassar unpacks how ESG, compliance, and performance can reinforce each other in practice. Wolfgang Lehmacher explores strategy in a carbon-constrained world where nature sets hard limits. Fox Chen examines how sustainable aviation fuel reshapes aviation's cost-speed equation. Finally, Kim Winter brings it together, showing why integrating sustainability into system design is now a leadership imperative, not a side project.

May is an incredible month as we bring LogiSYM APAC Symposium 2026 to Singapore Expo on 13-14 May, and the pre-events specially curated for Planning & Procurement and Cold Chain Management on 12 May in collaboration. Super excited to continue our collaboration with CeMAT South-East Asia and CargoNOW for the exhibition of latest technologies and innovations for intralogistics.

Look forward to seeing you there!

Brett Marshall

Editor-in-Chief

LogiSYM Magazine



LSCMS PRESIDENT'S MESSAGE

Navigating the System Imperative

The month of May in Singapore is always a focal point for the regional logistics community. However, as we gather for LogiSYM Asia Pacific 2026, LogiSYM Cold Chain, LogiSYM Planning & Procurement, the LogiSYM Gala Awards, CeMAT South East Asia with CargoNOW, and the Armstrong-CargoNOW 3PL Summit, the atmosphere is undeniably different. We are no longer discussing "potential" disruptions, we are living through a period of profound consequence.

The ongoing crisis in the Strait of Hormuz serves as a stark reminder of our industry's fragility and the "Never Normal." With traffic significantly reduced and energy prices surging, the ripple effects from semiconductor production to fertilizer supply have hit every corner of the global network. It has resurfaced the recalculation of the "Cost vs. Speed" equation, proving that resilience is a prerequisite for survival, not just a contingency plan.

When I set out our thematic focus for 2026 late last year, "Converging Forces: Human, Digital and Circular Supply Chains" the goal was to integrate workforce, technology, and sustainability into a singular, resilient framework. This framework aims to move beyond mere optimisation to fully redesigning global networks to be resilient against disruptions. While I had hoped for a calmer operating environment to implement these changes, the current volatility has only accelerated the need to move beyond mere optimisation. We are now tasked with the full-scale redesign of networks that can withstand the weaponisation of trade routes and the unpredictability of global energy markets.

True mastery of this craft lies in the ability to see the signal through the noise and understands Supply Chains are a lifeline of interconnected dependencies. Success today belongs to those who can bridge the gap between high-level digital strategy and the gritty reality of execution. I look forward to seeing you in Singapore this month to dissect these shifts and solidify a strategy that doesn't just survive the "Never Normal" but masters it.

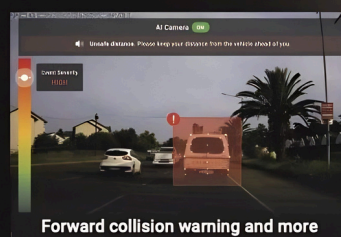
Raymon Krishnan, FALA, FCILT, CLP
President The Logistics & Supply
Chain Management Society

See everything, miss nothing with AI Vision Solution



Spot risks early. Respond instantly. Protect every journey.

- Detect risky driving behaviour and alert drivers in real time to prevent accidents.
- Recorded evidence reinforces accountability and reduces driver negligence.
- Strengthen driver safety buy-in with driver scorecards.
- Monitor cargo with internal cameras and deter theft with exterior fuel-tank camera surveillance.
- Eliminate blind spots with multi-camera feeds on the in-cabin monitor.
- Lower insurance costs by using video evidence to fast-track claims and exonerate drivers.
- Retrieve event-based footage easily via the cloud.



Protect your fleet with stronger visibility using Cartrack AI Vision Solution.



www.cartrack.com.my hello.my@cartrack.com [Cartrack Malaysia](https://www.facebook.com/CartrackMalaysia) [@cartrackmalaysia](https://www.instagram.com/cartrackmalaysia) [+607 336 9199](tel:+6073369199)

DECARBONISED | DECENTRALISED | DISTRIBUTED



THE PARADIGM SHIFT Decarbonisation That Improves Profit

For decades, decarbonisation in transport has been associated with higher costs, fleet replacement, and long-term investment cycles. That assumption is now changing.

WHAT THIS MEANS FOR YOUR BUSINESS

- Lower fuel consumption across active diesel fleets
- Reduced Scope 1 emissions, direct fuel combustion
- Improved Scope 3 reporting for cargo owners and corporates
- Measurable impact from ongoing operations, not future plans

Trident Nova — ASEAN Integrator for Saarthi Hydroedge Technology



Technology Partner: **SGT** Saarthi Hydroedge

REAL DEPLOYMENTS. REAL OPERATIONS.

Diesel Fleets in Malaysia

- Oil tanker fleets
- 40' cross-border haulage
- Essential service vehicles

10 units deployed and commissioned under live operating conditions.

COMMERCIAL FLEXIBILITY

Organisations can adopt based on their preferred model:

- Subscription-based deployment (DaaS)
- Asset ownership model

Both designed to align with operational realities and financial objectives.

WHY THIS MATTERS NOW

Diesel cost volatility, regulatory pressure, and Scope 3 accountability are converging on transport and logistics. The ability to act immediately — without waiting for fleet replacement — is becoming a competitive advantage.



CONTRIBUTORS



Dr. Shereen Nassar

Global Director of Logistics Studies, Heriot-Watt University Dubai



Wolfgang Lehmacher

Global Supply Chain Advisor & Former Director, World Economic Forum



Marian Temmen

Senior Director, Global Supplier Performance, Product Data Integrity & Traceability, PVH Corp.



Kim Winter

Title Global Managing Director, Logistics Executive Group



Fox Chen

Analyst Southeast Asia, ARC Advisory Group



Rafael P. Soriano

ISM APAC Regional Representative



Peter Sand

Senior Analyst, Xeneta



PUBLISHER Peter Raven

EDITOR-IN-CHIEF Brett Marshall

EDITOR-AT-LARGE Dr. Raymon Krishnan

DIGITAL EDITOR-GRAPHIC Servesh Sharma

SALES / ADVERTISING Harjeet Chekhire
Director Partnerships
Email: harjeet@logisym.org

MARKETING / PARTNERSHIP Swenly Coleen Sotelo
Feroz Yahya

COPYRIGHT

All material appearing in LogiSYM Magazine is copyright unless otherwise stated or it may rest with the provider of the supplied material. LogiSYM Magazine takes all care to ensure information is correct at time of printing, but the publisher accepts no responsibility or liability for the accuracy of any information contained in the text or advertisements. Views expressed are not necessarily endorsed by the publisher or editor.

LogiSYM Magazine 50
Sunview Road #04-15 Eco,
Tech@Sunview,
Singapore 627615
Tel: +65 6208 7785
Email: info@lscms.org

LogiSYM

Advance Your **Supply Chain** Leadership Position. Lead with Impact.

DOCTOR OF BUSINESS ADMINISTRATION (DBA)

Offered By:



**UNIVERSITY of INFORMATION
TECHNOLOGY and MANAGEMENT**
in Rzeszow, POLAND

- ✓ Complete in **2 years** without pausing your career
- ✓ Flexible format with **fully online** sessions
- ✓ Open to **Non-Supply Chain** candidates as well
- ✓ Guided by **industry experts & academic leaders**

FOR MORE INFORMATION

Please contact:
Saran (Programme Administrator)
Email: saran@logisym.org

en.uitm.edu.eu



The Trade-Off That Never Existed

Feature Article By Marian Temmen, Senior Director, Global Supplier Performance, Product Data Integrity & Traceability, PVH Corp.

The cost-versus-conscience framing was always fiction. Clinging to it now—while the ground shifts beneath us—is how organisations miss the moment entirely. There is a conversation that keeps happening in boardrooms and on conference stages—and it sounds increasingly sophisticated while becoming increasingly useless. It goes like this: how do we best balance cost efficiency and speed with our responsibility commitments? How do we meet ESG obligations without sacrificing competitiveness? How do we move fast and still do the right thing? Stop.

The question itself is the real problem. The framing—responsibility as a dial you can turn up when margins are healthy and back down when the pressure is on—undermines strategic confidence. Recognizing responsibility as a core asset can empower organizations to lead confidently. Worse than the financial cost: it is causing organisations to look away from shifts that are already rewriting the rules. Geopolitical realignment, the collapse of cheap globalisation, tightening climate regulation, technological advancements, and consumer markets that are beginning—slowly, but unmistakably—to price in

responsible production. These are not trends to be monitored. They are structural changes to the operating environment. And the trade-off framing is perfectly designed to keep you from seeing them clearly.

WE BUILT THE INFRASTRUCTURE TO BE ACCOUNTABLE, THEN GOT COLD FEET.

For most of the past decade, responsible business lived in the sustainability team, surfaced at investor briefings and generated annual reports nobody read twice. That model worked—in a narrow sense—for as long as responsible operations remained voluntary, reputational, and comfortably disconnected from the actual running of the business.

That world has ended. Yet too many organisations are still operating as if it hasn't. The EU's Corporate Sustainability Reporting Directive, the Carbon Border Adjustment Mechanism, Digital Product Passport mandates, supply chain due diligence laws across Europe — these are not CSR initiatives. additional reporting



rather than as signals of structural inadequacy. Certifications. Pilot programmes. Beautifully formatted, responsible business reports. All of it is optimised for the appearance of progress—for managing what gets revealed rather than changing what actually happens.

The industry doesn't have a data problem. It doesn't have a standard problem. It has a courage problem. The question of whether to publish full supply chain emissions data hinges on competitive positioning. Organizations willing to be judged by what they find gain trust, differentiate themselves, and build resilience in a market increasingly valuing transparency and responsibility.

IGNORING THE SHIFT DOESN'T MAKE IT SLOWER

Here is the part that the trade-off framing actively prevents you from seeing. Organisations that treat responsible operations as a cost to be managed are not just making a strategic miscalculation. They are operating on assumptions about how global trade works that are becoming less true

every quarter. Cheap, opaque, unverifiable supply chains were a product of a specific era—low regulatory scrutiny, low energy prices, stable geopolitics, and a consumer market that did not ask hard questions about what it was buying. Every one of those conditions is now under pressure simultaneously. The era of competitive advantage built on invisibility is coming to an end.

What replaces it is an era where knowing your supply chain in detail, in real time, with confidence is not a responsible business aspiration. It is a basic operating requirement. The organisations that are sleepwalking through this shift are not being bold and commercially hard-headed. They are being dangerously short-sighted.

The seismic changes underway in regulation, in geopolitics, in the economics of production—these do not pause for organisations that have not finished their internal alignment process. They move on. And the window to build the infrastructure, the supplier relationships, and the data capability to operate in that new environment is narrowing

faster than most boardrooms have acknowledged. Treating responsible operations as optional is not a conservative business position. It is a bet that the ground stops shifting. That bet is losing.

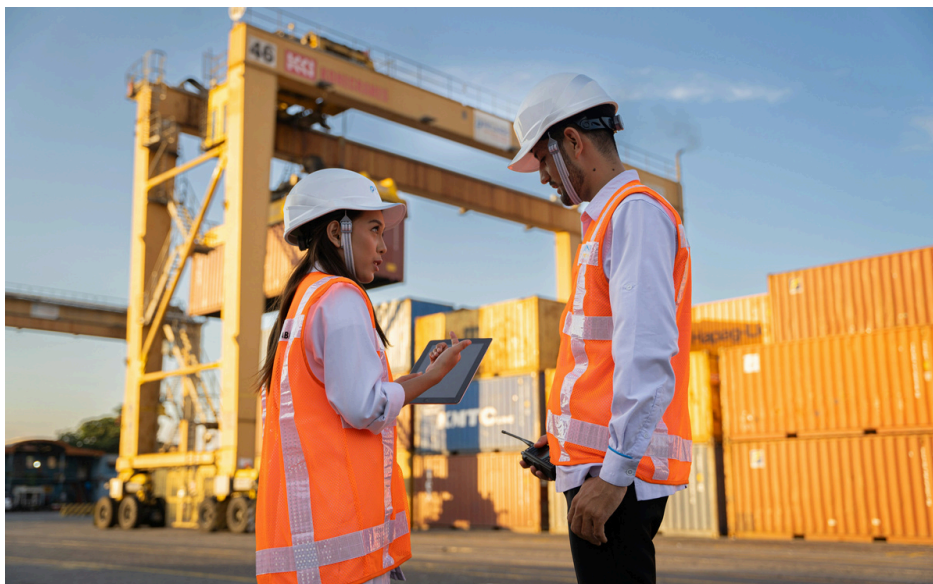
WHAT THE DATA DEFICIT IS ACTUALLY TELLING YOU

Most supply chain organizations face sustainability challenges not because of values but because of data gaps. Transparent, verifiable data is essential for responsible operations and market trust. The conventional response is to build a sustainability data programme - hire a team, buy a platform, establish a reporting cadence. This is where the second mistake happens: treating the data problem as a sustainability problem, when it is an operating model problem that compliance has finally made impossible to ignore.

Fragmented, unverifiable data is a signal. It tells you the organisation was built for a world where you did not need to know - in detail, at source, with audit-grade confidence - what was happening upstream. That world has ended. The data deficit has always been there, creating waste, slowing decisions, and blinding organisations to risk. Regulatory pressure is just the first stakeholder formally willing to call it out. The market will be next.

SPEED IS NOT THE ENEMY OF RESPONSIBILITY

The assumption is that responsible sourcing slows you down - longer qualification cycles, more documentation, and a reduced vendor pool. All true, if responsible operations are applied as an audit layer on top of an unchanged model. But that



is not integration. That is friction. Organisations that have genuinely wired responsible operations in - not bolted them on - tend to find the opposite. Supplier relationships built on verified data, transparent performance metrics, and shared compliance standards are more resilient, not less agile. You spend less time managing exceptions, disputes, and surprises. Risk becomes visible before it becomes a crisis. The supply chain stops being a liability, you manage and becomes a capability you can actually rely on.

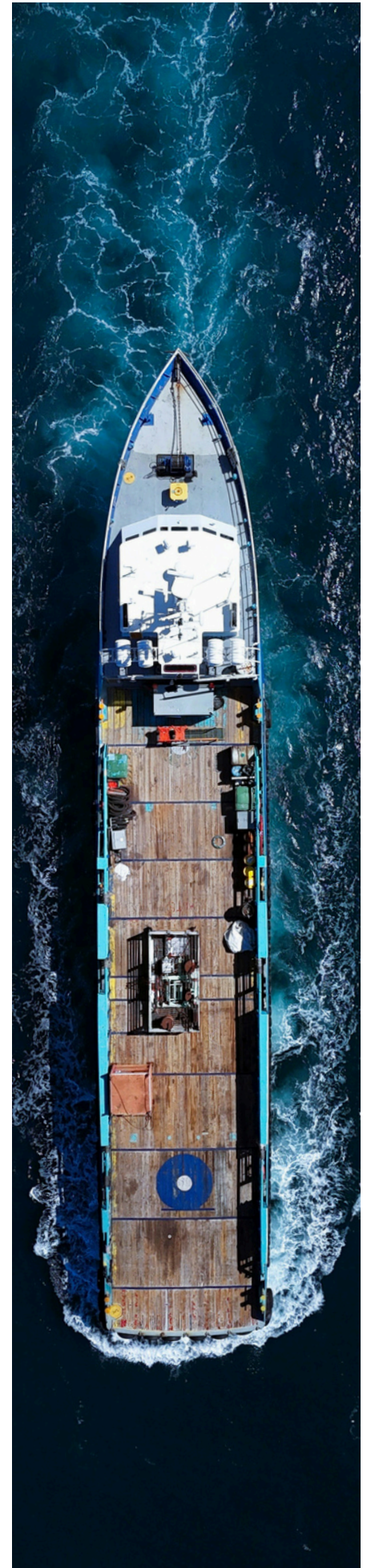
The fashion and apparel sector has been a useful proving ground. Companies that built traceability infrastructure for regulatory reasons discovered that the same data layer accelerated product development cycles, reduced overproduction, and sharpened demand planning. The investment made for compliance generated operational returns unrelated to compliance. Speed and responsibility were not at opposite ends of a dial. They were outputs of the same underlying capability: actually knowing what is happening in your supply chain. Circularity follows the same logic-and

exposes the same courage deficit. Every circular business case I have seen gets built the same way: someone passionate puts together a deck, the numbers almost work if you squint, it goes to finance, and it dies quietly. Then the company publishes its responsible business report anyway. The organisations making circularity operational did not get there by making the spreadsheet work.

They got there because someone at the top decided this is what the business is for-and rebuilt the model around that decision rather than trying to justify the decision with the old model. That requires genuinely rare conviction. And it is exactly what the current moment demands.

THE REAL QUESTION FOR SUPPLY CHAIN LEADERS

The supply chain function sits at the centre of all of this. It controls the physical flows, the supplier interfaces, the data touchpoints, and increasingly the emissions ledger. It is the function best positioned to see what is actually shifting in the operating environment - and the function that will be blamed



first when the organisation fails to adapt fast enough. Logistics leaders who understand that compliance mandates are a forcing function for operational excellence-not a distraction from it-are in a position to drive transformation that boards, regulators, and the market are all demanding simultaneously.

The organisations treating emissions data, supplier verification, and product traceability as core operational infrastructure are the ones building the capability to compete in the environment that is coming. The ones treating it as a reporting exercise are building debt. The right question is not “how much compliance can we absorb?” It is “what operating model do we need to build for a world where this is simply how business works?” That is a different kind of challenge - and it requires executives willing to name the shift honestly rather than managing the optics of it. The trade-off was always a false construct.

The real choice for logistics leaders is whether to engage with the scale of what is changing - or to spend the next five years producing sophisticated-sounding reasons why now is not the right moment.

The moment is not waiting.



Marian Temmen

Senior Director, Global Supplier Performance, Product Data Integrity & Traceability, PVH Corp.

Marian Temmen works at the intersection of supply chain transformation, traceability, and responsible operations — where strategy meets the friction of actually changing how global supply chains run. He serves as Senior Director of global suppliers. Performance, Product Data Integrity & Traceability at PVH Corp (Calvin Klein, Tommy Hilfiger).

Over 20 years across fashion, MedTech, and retail, his focus has been consistent: building the data infrastructure and operating models that make accountability real, not just reportable.





Stop Scaling Headcount. Start Scaling Efficiency.

agenticX



Sea Efficiency

- Global Container Tracking



Air Speed

- Predictive Route Optimization



Land Accuracy

- Precise Last-Mile Delivery



Rail Connectivity

- Seamless Intermodal Shifts

Power your FMS with CuberAI AgenticX.

Beyond Efficiency: Aligning ESG, Compliance, and Performance in Logistics

Feature Article By Dr Shereen Nassar, Global Director of Logistics Studies, Heriot-Watt University Dubai

The global logistics sector has traditionally defined success by two metrics: cost and speed. While the ability to move goods faster and more efficiently has long defined competitive advantage, that definition is now undergoing a significant change.

Logistics leaders are expected to deliver not only economic value but also environmental responsibility and regulatory compliance. In recent years, sustainability is no longer just a peripheral concern but a core operational requirement. This shift is being driven by a combination of factors. Governments across the Middle East have made ambitious climate commitments, including the UAE's Net Zero 2050 strategy and Saudi Arabia's

Green Initiative. Furthermore, The United Arab Emirates (UAE) has greatly advanced its environmental, social, and governance (ESG) rules, moving from voluntary reporting to mandatory reporting, especially after COP28 and the introduction of federal climate legislation.

The center of attention is the Federal Decree-Law No. (11) of 2024 regarding the Reduction of the Climate Change Effects, which requires companies to track greenhouse gas (GHG) emissions starting 30 May 2025. At the same time, multinational corporations are embedding environmental, social and governance criteria into their procurement and supply chain decisions. Investors are also placing

greater emphasis on Environment, Sustainability, and Governance (ESG) performance, with sustainability disclosures increasingly influencing capital allocation. As a result, logistics providers are operating in an environment where emissions data, compliance standards and transparency expectations are as critical as delivery timelines. While cost per shipment, shipment delivery reliability, and transit time are still critical for companies, new metrics are being used to assess supply chains.

US-based companies are placing more emphasis on carbon, energy efficiency, and Scope 3 emissions. According to McKinsey in their 19 June, 2024 article "Decarbonizing logistics: Charting the path ahead", logistics and warehouse emissions are responsible for 7% of global greenhouse gas emissions, placing logistics at the front of sustainability initiatives.

One can see this transformation distinctly in the Middle East, where countries such as the UAE and Saudi Arabia are investing in advanced logistics infrastructure that integrates sustainability within the pillars of their economic growth. For example, UAE has ranked



consistently as one of the top countries in the World Bank's Logistics Performance Index in the region, a metric that captures the country's good infrastructure, streamlined customs, and excellent logistics services. Simultaneously, the Middle East is designing the next phase of the logistics evolution with green logistics corridors, smart mobility, and large scale clean and renewable energy investments. Although these initiatives can be seen as separate, the opposite is true, increasingly a shift is seen in high performance and environmentally sustainable logistics systems.

FROM STRATEGY TO ACTION

Although ESG has long been an essential aspect of logistics, it is now starting to be incorporated into everyday operations rather than being restricted only to higher-level strategic considerations. For example, route planning is no longer only focused on time and cost – businesses are increasingly using advanced digital technology and AI-powered platforms that allow them to incorporate emissions data into route planning, allowing for more sustainable routing choices with lower levels of carbon emissions while also optimising delivery times.

Similarly, warehousing has also been transformed by advances in environmentally friendly buildings, solar integration, and automation, which all contribute to reducing the negative impact of warehouses on the environment. Procurement has also become much more complex and strategic than in the past, with companies no longer just choosing suppliers to work with based on price or reliability but rather placing

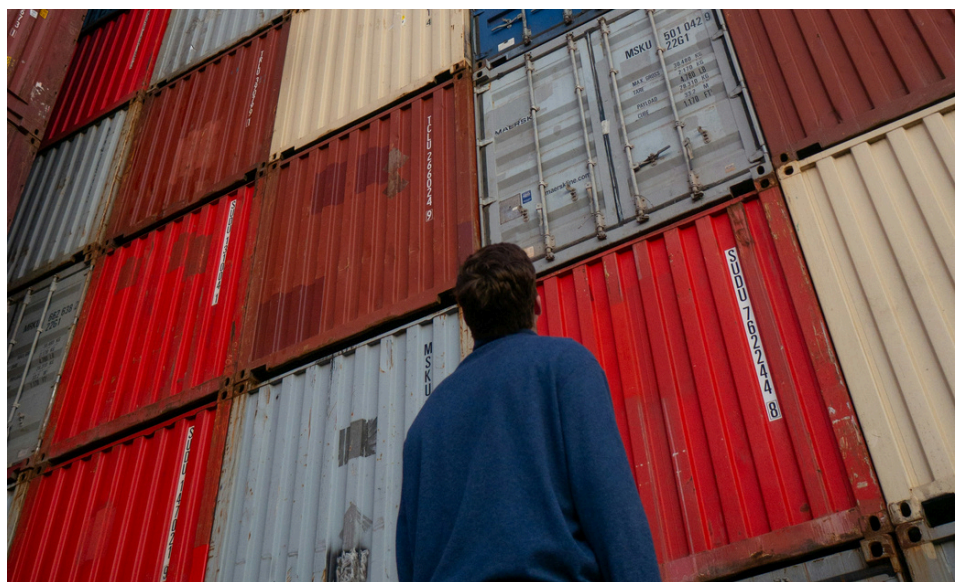
more importance on finding suppliers that meet a variety of ESG criteria. In addition to looking for suppliers with a low carbon footprint, companies are also looking at how ethical their sourcing practices are, and whether or not the supplier will be compliant with international environmental regulations. These are just a few examples that illustrate that the logistics industry is changing fundamentally from a model that viewed sustainability as an “add-on” to a model where sustainability will be one of the primary factors impacting all of a company's decisions, and thus its long-term global competitiveness.

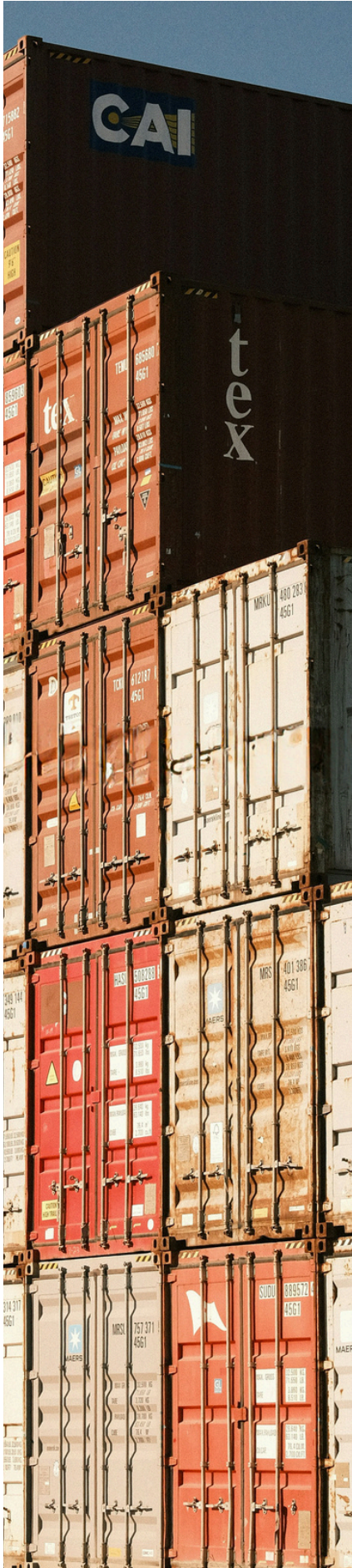
This operational integration reflects a broader shift in which leading companies are incorporating ESG considerations into their core decision-making processes. This is particularly relevant for logistics providers serving multinational clients, many of whom now require detailed emissions reporting and adherence to global sustainability frameworks. Compliance, therefore, is not simply a regulatory obligation but a prerequisite for market access.

THE ROLE OF TECHNOLOGY

One of the most significant challenges in this transition is balancing cost, speed, and sustainability. Historically, these objectives have often been seen as competing priorities. Faster delivery options, such as air freight, typically come with higher emissions, while sustainable alternatives, such as sea or rail, involve longer transit times. However, advances in technology are beginning to reduce these trade-offs. Artificial intelligence and predictive analytics are enabling more efficient route optimisation, reducing both fuel consumption and delivery times.

Real-time visibility platforms allow logistics operators to respond dynamically to disruptions, improving efficiency while minimising waste. In parallel, investments in electric vehicles and alternative fuels are gradually reshaping last-mile and long-haul transport. For instance, companies such as DP World are implementing smart logistics solutions that integrate sustainability into operational performance. From electrified port equipment to data-driven supply chain platforms, these initiatives demonstrate how environmental and





economic objectives can be aligned. Similarly, global players like DHL have committed to achieving net-zero emissions by 2050, supported by investments in sustainable aviation fuel and green warehousing. Regulation is also acting as a catalyst for change. Across global markets, carbon disclosure requirements and ESG reporting standards are becoming more stringent. For logistics providers in the Middle East, this creates both challenges and opportunities. While compliance may require investment in systems and processes, it also enables differentiation. Companies that can provide transparent, verifiable emissions data are better positioned to secure contracts with international partners.

WAY FORWARD

Ultimately, the logistics sector is transitioning towards a more integrated performance paradigm, in which cost, speed, and sustainability are no longer treated as discrete variables but as interdependent components of a unified system that must be optimised holistically. Organisations that continue to prioritise traditional efficiency metrics in isolation may find themselves at a strategic disadvantage within an increasingly ESG-driven landscape. In contrast, those that systematically embed sustainability within their operational and decision-making frameworks are better positioned to enhance resilience, mitigate risk, and generate long-term value. As the sector continues to evolve, competitive advantage will be determined not solely by the speed of delivery but by the extent to which logistics operations are executed in a sustainable, data-driven, and strategically aligned manner.



Dr. Shereen Nassar

Global Director Logistics Studies and the Director of the MSc Logistics and Supply Chain Management, HeriotWatt University Dubai

Dr Shereen's main research interest is sustainability and supply chain resilience. She has published numerous research papers and book chapters in areas such as automotive recall risk and social sustainable supply chain performance, sustainable maritime logistics, supply chain information security, contemporary disruptive business applications of blockchain technology, smart cities and implementation challenges.

Dr Shereen has extensive international teaching experience across UK and MENA region. She teaches both postgraduate and undergraduate levels. Her teaching proves the diverse expertise she has developed over a decade.



AI-POWERED · ETHICAL · GLOBAL

Edge Services Reimagined for the AI Era.

Orchestrating intelligent fulfilment across 100+ facilities in 6 countries —
with AI-verified quality at every step.

TRUSTED BY LEADERS IN THESE INDUSTRIES SINCE 1990

Cosmetics

Nutraceuticals

Apparel

Hardware

F&B

Electrical

Circular Economy

Marketing

100+

Global Facilities

6

Countries

35+

Years of Excellence

<2hr

Quote Turnaround

WHAT WE DO & OUR ADVANTAGE

ASSEMBLY & KITTING

Building products, kits, and
bundles

PACKING

Getting products shelf-ready
and protected

LABELING & TAGGING

Product identification and
compliance

PRINT & MARKETING

Finishing and fulfilling
marketing materials

QUALITY & SORTING

Inspection, verification,
and organization

FULFILLMENT & LOGISTICS

Pick, pack, and deliver

RETURNS & REWORK

Second chances for products

DESTRUCTION & CIRCULAR

Responsible end-of-life
handling

FABRICATION

Industrial fabrication,
custom builds, and precision manufacturing

One Relationship. One Platform. Every Capability.

Get Your Quote in Under 2 Hours

Connect with our fulfilment specialists for a tailored solution — fast.

hello@cleverpak.com[24/7 Live Chat](#)

Scan to learn more.





How One Bad Investment Strategy Broke a Supply Chain by 2029 and How to Avoid the Same Fate

By James Redshaw, CeMAT

It is 2029. The boardroom is silent. Three years earlier, the business approved what it believed was a future-proof supply chain transformation strategy. Millions were committed to robotics, AI forecasting, warehouse software, sustainability initiatives and digital upgrades. The pitch was compelling: modernise now or fall behind. Today, much of that investment is underperforming. The warehouse automation system is bottlenecked by workflows that were never redesigned before implementation. The AI platform cannot generate reliable forecasting because the underlying data remains fragmented and inconsistent.

Sustainability initiatives increased capex but failed to reduce operating costs. Staff turnover has risen as teams struggle to adapt to systems that they were never properly trained to use. A cyber incident has exposed vulnerabilities across the logistics network.

Meanwhile, competitors who invested more strategically are operating faster, leaner and more profitably. While fictional, this scenario is far from unrealistic. Across industries, transformation projects continue to underdeliver when businesses pursue technology before strategy and buy into

hype before validation, or invest in tools their operations are not yet ready to support. By 2029, the businesses leading their sectors will not necessarily be those who spent the most. They will be those who spent smartest. So how do you avoid becoming the cautionary tale? For many operators across Southeast Asia, the answer may begin with three days at CeMAT Southeast Asia 2026.

STEP ONE: START WITH STRATEGY, NOT SHINY OBJECTS

Every failed transformation begins the same way: someone buys the solution before properly defining the problem. Automation is not a strategy. AI is not a strategy. Sustainability is not a strategy.

They are tools. Before any investment is made, supply chain leaders must first determine what they are actually trying to solve. Is the issue throughput? Labour availability? Storage density? Picking accuracy? Network resilience? Sustainability targets? Margin pressure?

That is why one of the most important sessions at CeMAT Southeast Asia 2026 may be Richard Bycroft's keynote, "Aligning Automation with Business Strategy, Customers and Markets – Designing Future-Ready Supply Chains for Competitive Advantage." Before attendees even reach the exhibition floor, the event challenges them to think strategically about investment, not tactically.



STEP TWO: LEARN FROM THE BUSINESSES BUILDING AUTOMATION AT SCALE

Once strategy is clear, the next challenge is determining what good automation actually looks like. That conversation starts with Dematic, Conference Sponsor of CeMAT Southeast Asia 2026 and one of the world's leading names in warehouse automation and integrated supply chain solutions. For many attendees, Dematic will be a critical first stop.

Not because automation is always the answer, but because understanding where and how automation creates genuine operational advantage is now essential for any modern supply chain leader. Through its presence on the exhibition floor and involvement in the conference program, Dematic will help attendees explore what successful automation investment looks like across system design, implementation, scalability and long-term operational optimisation. Surrounding Dematic will be

many of the industry's leading automation and robotics providers, including companies such as Geek+, Toyota Automated Logistics, TGW Logistics and others exhibiting across the show floor, allowing visitors to compare multiple automation approaches in one place. Combined with sessions such as Warehouse Automation 2.0: How Robotics is Powering the Next Wave of Operational Excellence, attendees can move beyond sales claims and begin assessing what automation actually fits their operation.

STEP THREE: SEE IT WORKING BEFORE YOU COMMIT CAPITAL

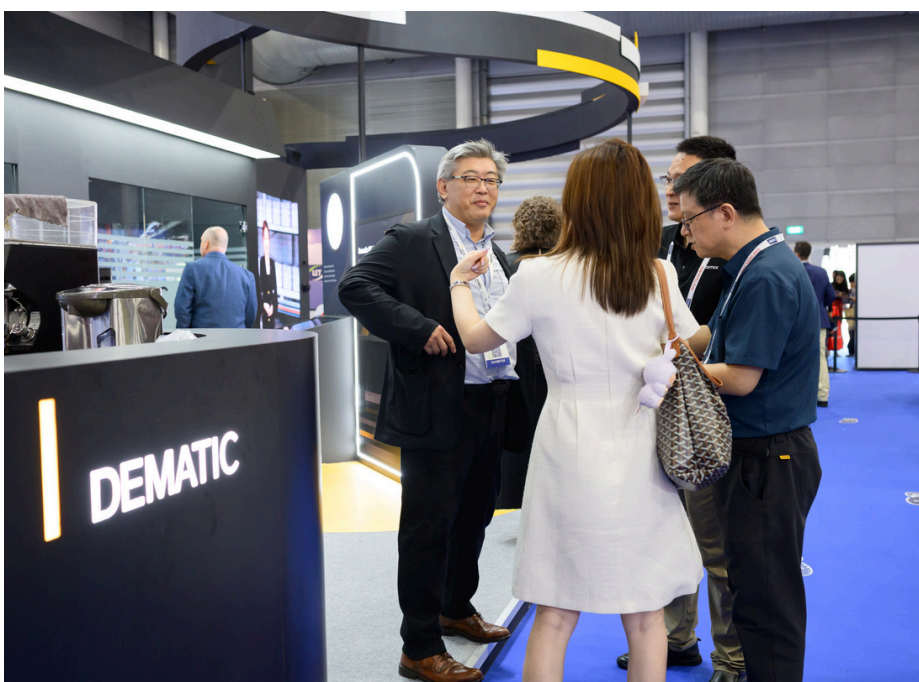
Of course, warehouse automation always looks good in a render. The true test is seeing it perform in a live environment. That is why the Element Logic & AutoStore Site Tour may prove one of the most valuable experiences available to attendees at CeMAT Southeast Asia 2026. Offering a behind-the-scenes

look at one of the world's most recognised automated storage and retrieval systems operating in the real world, the site tour gives visitors the chance to move beyond theory and witness automation in practice. For businesses considering goods-to-person systems, high-density storage or scalable automation investment, there is no substitute for seeing the technology deployed in a live operating environment. Because no sales deck can replicate what operators learn by watching automation perform under real conditions.

STEP FOUR: UNDERSTAND WHY SOFTWARE OFTEN DETERMINES SUCCESS OR FAILURE

Many businesses focus heavily on physical automation while underestimating the importance of software, orchestration, and data visibility. Yet increasingly, it is software that determines whether automation investments succeed or fail. That is why the Knowledge Theatre Inspired by IFS Softeon will play such an important role at CeMAT Southeast Asia 2026.

Across the program, attendees will gain practical insight into warehouse intelligence, workflow orchestration, software integration and the operational data strategies required to maximise automation performance. Because even the best automation hardware will underperform if the software ecosystem behind it cannot support intelligent decision-making.



STEP FIVE: SEPARATE AI OPPORTUNITY FROM AI THEATRE

Few technologies are attracting more boardroom attention than AI. Few are also being misunderstood more badly. Across the market, businesses are rushing to implement AI tools before first fixing the fragmented data environments and inconsistent workflows that AI depends upon. The result is often expensive software layered over poor operational foundations. CeMAT Southeast Asia tackles this challenge head on through sessions including:

- “Robots, Algorithms, and Other Lies We Tell Ourselves About AI”
- “Zero-Downtime AGV Operations: How Predictive AI Eliminates WiFi Handover Failures in Automated Warehouses”
- “Navigating the AI Shift: Cultivating Future-Ready Supply Chain Talent in ASEAN”

Together, these sessions help attendees understand where AI creates genuine value, where it is overhyped, and what operational maturity is required before implementation.

STEP SIX: DON'T NEGLECT THE PHYSICAL LAYER OF THE OPERATION

Technology transformation is not purely digital. Many automation projects fail because businesses over-focus on software and robotics while neglecting the physical infrastructure that underpins warehouse performance. Poor racking design. Inefficient forklift fleets. Inadequate charging infrastructure. Outdated warehouse layouts. All can cripple otherwise strong technology investments. That is why CeMAT Southeast Asia also gives attendees access to operational infrastructure leaders including Hyster-Yale, Dexion, and Wiferion, helping visitors assess the foundational

equipment and infrastructure decisions that support modern warehouse performance. The Forklift Championships, supported by Hyster-Yale, Dexion, and media partner ForkliftAction, further reinforce the reality that operator capability, safety and equipment performance remain critical components of supply chain excellence even in increasingly automated environments.

STEP SEVEN: BUILD RESILIENCE, NOT JUST EFFICIENCY

Efficiency without resilience is increasingly a dangerous strategy. Supply chains today must be fast, lean and adaptable, but also secure and robust enough to withstand disruption. That is why resilience and asset protection form a growing part of the CeMAT Southeast Asia conversation. Through strategic partner TAPA, attendees can gain insight into how leading operators are building more secure and anti-fragile supply chains, including through sessions such as “The Anti-Fragile Supply Chain: Powering Secure and Agile Intralogistics in a Volatile World.” Because a faster supply chain means little if it cannot withstand disruption.

STEP EIGHT: MAKE SUSTAINABILITY COMMERCIALY RATIONAL

One of the most common mistakes businesses make is treating sustainability as a separate investment stream rather than integrating it into operational improvement. The best sustainability initiatives reduce emissions because they reduce waste,



improve efficiency or lower energy consumption.

At CeMAT Southeast Asia, sustainability is addressed not as a PR exercise, but as a practical business discipline through dedicated content exploring how operators can implement the right initiatives and partnerships to improve both environmental and commercial performance. For businesses trying to balance cost, speed and sustainability, this distinction matters.

STEP NINE: UNDERSTAND THE BROADER FORCES RESHAPING LOGISTICS

Internal operations are only part of the equation. External market forces continue to reshape logistics strategy, from ecommerce disruption and marketplace fulfilment to cargo transformation and freight digitisation. That is why co-located event CargoNOW Singapore adds critical broader-market context to the visitor experience.

Supported by SAAA Singapore, SECB, and the wider cargo

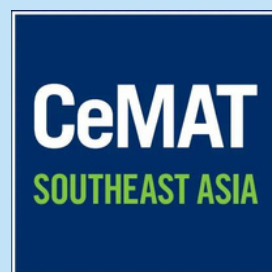
ecosystem, CargoNOW explores the macro trends reshaping logistics through sessions on marketplace logistics, e-commerce disruption, cargo transformation, and the future distribution centre. Together with strategic ecosystem partners including Enterprise Singapore, Singapore Manufacturing Federation (SMF) and SIPMM, the broader CeMAT Southeast Asia platform connects technology decisions with wider market and policy realities. The Businesses That Win by 2029 Will Not Be the Ones That Spend Most

They will be the ones that spend with the greatest clarity.

- The ones that challenge hype.
- The ones that validate before they buy.
- The ones that learn from operators, not just vendors.

- The ones that understand strategy before selecting technology.

And increasingly, they will be the ones who treat events like CeMAT Southeast Asia not as trade shows, but as strategic planning environments. Because by the time 2029 arrives, the consequences of getting supply chain investment wrong may be too expensive to reverse.



About CeMAT

CeMAT is planned and delivered in multiple locations around the globe, with CeMAT South East Asia organised by Hannover Fairs Australia, a subsidiary of Deutsche Messe.

CeMAT South East Asia is coming to Singapore on 12-14 May 2026 at Singapore EXPO as the platform for the latest industry innovations and for exchanging ideas and insights on the warehouse of the future.

The CeMAT exhibition will be a one-stop-shop of the leading technology and service providers in intralogistics, robotics and automation, warehousing, supply chain management and materials handling. CeMAT will showcase innovation and best practices in a wide variety of settings and sectors - from e-commerce to manufacturing, from the food industry to resources.



When Nature Sets the Terms: Logistics Strategy in a Carbon-Constrained World

Feature Article By Wolfgang Lehmacher, Global Supply Chain Advisor & Former Director, World Economic Forum

DESIGNING ADVANTAGE INSIDE THE BOUNDS

Logistics now operates within natural, regulatory, and capital limits. My core takeaway: logistics strategy should explicitly account for carbon constraints, making sustainability a central part of decision-making. From here on, logistics strategy lives inside a carbon budget. The competitive question is how to design advantage inside the bounds.

WHEN THE PLANET BECOMES A DESIGN CONSTRAINT

Logistics models once treated the physical world as a constant. Fuel had a price; emissions did not. Congestion, air quality and climate risk rarely entered the equation. Transport accounts for roughly one-fifth of global CO₂ emissions, with road transport carrying most of that share. Freight – planes, ships, trucks, and trains – makes up nearly a tenth of global greenhouse-gas emissions; this rises further when warehouses and ports are included. Without

major changes, emissions could roughly double by mid-century as e-commerce and trade expand. Planetary-boundary science shows that environmental limits are now tangible thresholds, not just ideals. Key takeaway: a sustainable supply chain is one that operates within these thresholds, not just one that is efficient or claims to be sustainable. Freight is hard to decarbonise. Assets are long-lived, fuels are still mostly fossil, and networks cross borders and regimes. Climate change is already pushing back: floods close ports, low rivers halt barges, heatwaves damage rails and stress cold

chains. Designing networks as if those shocks did not exist is like designing a bridge without a load limit.

LAW AND CAPITAL REDRAW THE PLAYING FIELD

Nature defines the outer wall. Law and capital are building the inner ones. In Europe and beyond, mandatory sustainability reporting now reaches into supply chains, including upstream and downstream logistics. Carbon-border rules are turning emissions into tariffs. Standard methods for calculating transport emissions are emerging.



What started as a voluntary disclosure has become hard law; climate policy is now part of the design brief. Capital sends a similar signal, with higher environmental and social scores often tied to scale and efficiency. Investors now consider ESG indicators to assess management quality and resilience. Lenders and insurers are starting to adjust capital costs based on climate and ESG risk, making high-emission, low-transparency networks more expensive, as shippers report and reduce value-chain emissions.

Decarbonizing emissions-intensive supply chains is achievable, often at modest cost. The main takeaway: it is feasible to make significant cuts within current technological and economic frameworks, with nature, regulation, and capital aligning to define what is both possible and necessary.

LOGISTICS AS OPERATING SYSTEM OF THE NET-ZERO ECONOMY

Logistics is not simply at risk from climate policy; instead, it can lead and enable the transition to a net-zero economy. Takeaway: logistics is central to building and running a successful net-zero system.

European policy casts logistics as a primary lever for climate action. Better planning, consolidation, intermodal routing and data-driven control towers are classic logistics tools that also cut emissions. AI-enabled planning and digital control towers will sharpen these levers; they will not remove nature's limits, but will make the trade-offs within those limits visible in real time, lane by lane and order by order. Boise Inc. shifted freight from truck to direct rail on lanes with rail access, increasing pallet utilization and treating emissions as a design constraint. The resulting Carload Direct initiative reportedly cut emissions by about 70%, saved substantial fuel, and lowered costs while maintaining service levels.

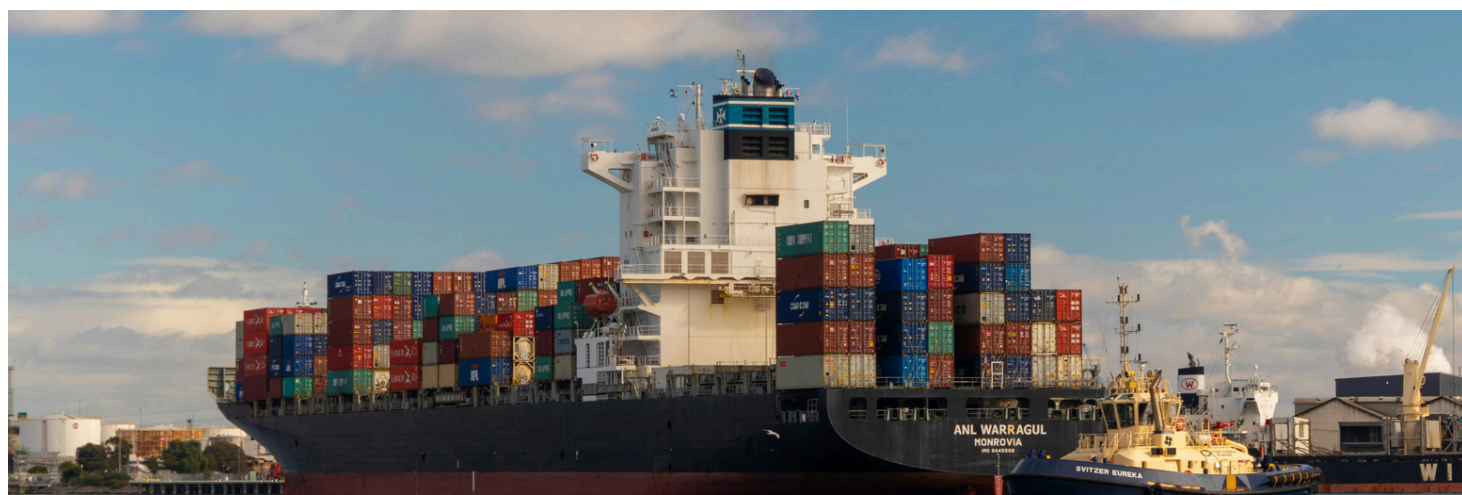
Ocean Spray added a distribution center and used empty rail backhaul for selected US beverage routes, moving volumes from road to rail and intermodal. The project lowered corridor costs by about 40% and cut emissions, evolving from a cost-driven to a carbon-efficient approach. As economies move toward circularity, logistics will manage complex product flows under carbon constraints. Key takeaway: Each logistics decision directly affects the

ability to meet carbon goals.

COMMITMENT IS HIGH; CAPABILITY LAGS

Supply chain leaders increasingly recognise that sustainability is now critical, and they often link it directly to resilience. Surveys of professionals across many regions show a clear majority view supply chain sustainability as important or essential to long term success, even after the shocks of the pandemic, inflation and geopolitical tensions. Yet most companies still struggle with the basics: mapping multi-tier networks, obtaining credible emissions data, identifying how much of their footprint lies in logistics, and turning long-range targets into operational rules.

They have net zero ambitions, but their control systems and decision routines belong to a pre-carbon constrained world. The core gap is no longer belief, but the ability to execute within the bounds. The Carbon-Bound Triangle: Nature, Law, Capital. A simple frame can help leaders see the new playing field. Imagine a triangle. At its corners sit nature and society, regulation and capital. Inside sit cost and speed. Nature and society



define the physical and social limits: the remaining carbon budget, local air-quality standards and road-traffic tolerances around hubs. Regulation covers rules such as corporate sustainability reporting, carbon-border measures, Scope 3 disclosure and standardised emissions-calculation methods, which shape how logistics emissions are measured, reported and priced and are tightening over time. Capital reflects investor, lender and customer expectations, expressed in ESG assessments, covenants and tender criteria. Cost and speed still matter, but they now fall within the triangle. The key takeaway: a solution that performs well on price and lead time but does not meet the criteria for nature, law, or capital remains fragile.

SHIFTING FROM AMBITION TO ABILITY: THREE MOVES FOR CARBON-BOUND LOGISTICS

Once leaders accept that logistics operates within hard carbon bounds, three actions make that reality manageable: set context-based targets, measure what matters, and re-

optimise design. These moves turn net-zero from a slogan into a logistics challenge you can solve; they are the practical craft of designing advantage inside the bounds. Start from a carbon budget, not last year's baseline. Relative goals like "minus 20% emissions per tonne-kilometer" are a start, but not enough. Companies need a view of their fair share of the remaining carbon budget, an absolute emissions pathway for the supply chain, and a ceiling for logistics and key corridors. Those ceilings should become design rules planners actually use: maximum emissions per tonne-kilometer on key lanes by specific dates; minimum rail and barge shares where infrastructure exists; limits on carbon-intensive premium options.

In the Boise–OfficeMax case, once truck and rail emissions were put next to cost and service for the lanes in scope, the design rule was obvious: maximize direct rail on those lanes and redesign pallets until the flows fit inside both the emissions and cost envelope. Measure what matters in

logistics emissions. Hard limits without measurement are theatre. Leaders are moving from high-level, spend-based carbon estimates towards activity based data where it counts: by mode, corridor, customer and product. A practical starting point is a carbon ledger for logistics covering the last one to two years, built from distance, weight and agreed emissions factors, under a single calculation standard so regions and business units are working from the same numbers.

Logistics does not own all the data it needs, so carriers and third-party providers have to be pulled in by asking for lane-level emissions data or agreeing on shared methods, starting with partners that track fuel, routes and utilisation. Emissions then need to be wired into the control tower: sales and operations planning, network design reviews, capital budgeting. Someone – effectively a carbon controller for the supply chain – must have the mandate and the tools to stop a design that breaks the carbon budget.

Redesign the handful of lanes that drive most of the footprint. Once targets and data are in place, the optimisation challenge changes from two-dimensional to multi-dimensional. At network level, this means identifying the small set of lanes and nodes that generate a disproportionate share of logistics emissions and redesigning them: shifting long-haul flows from road to rail or barge where possible, as cases like Boise and Ocean Spray illustrate; relocating or repurposing distribution



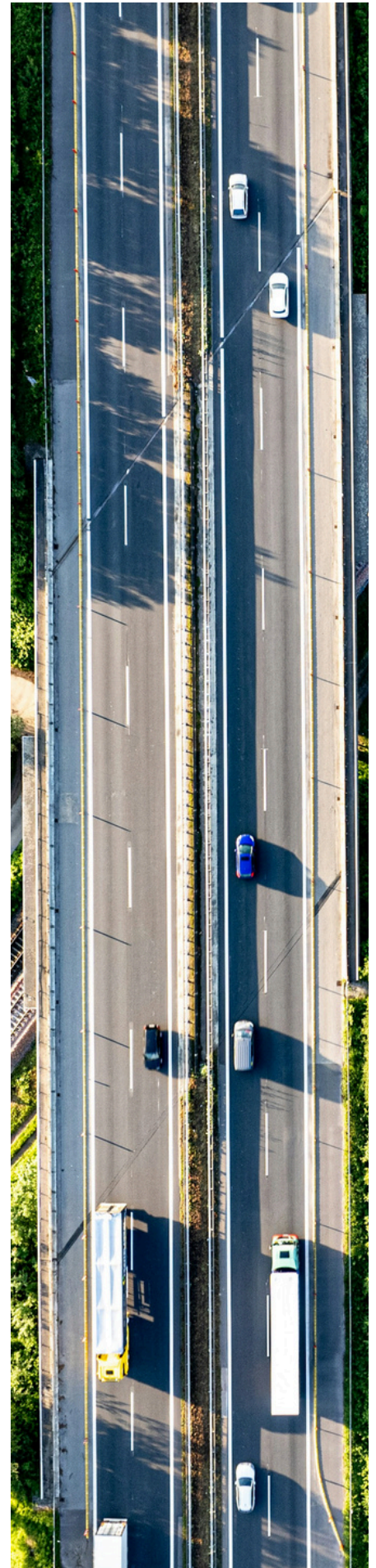
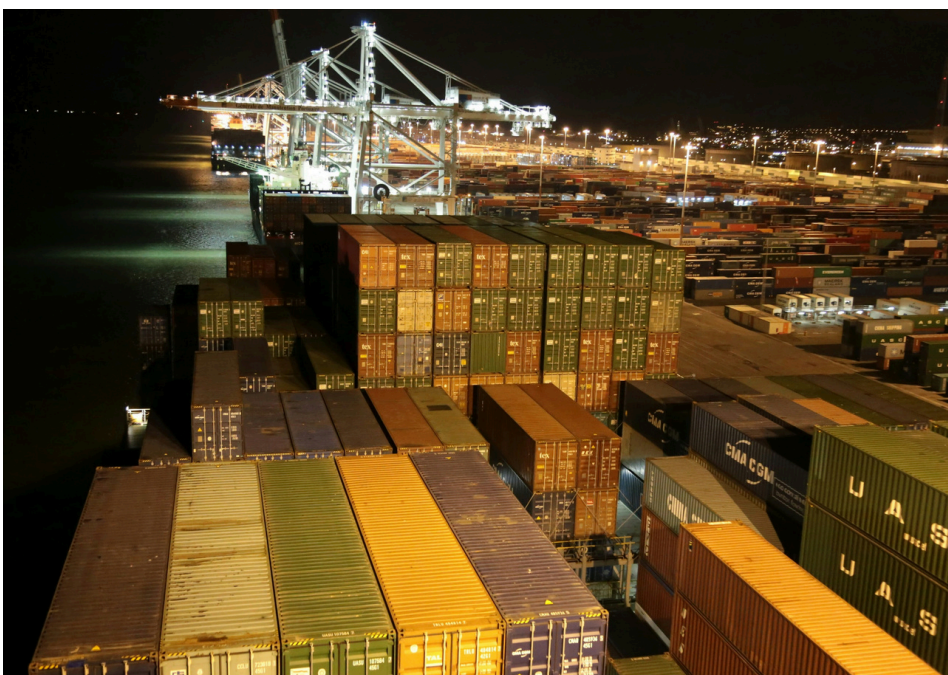
centres and cross-docks to shorten high-emission legs; and renewing fleets with a view to likely future carbon prices and regulations rather than past fuel prices alone. At operational level, it means taking action about utilisation and routing: smarter pallet and load design to raise fill rates, fewer empty miles through better backhaul matching, route-optimisation tools that surface emissions alongside time and cost, and tender rules that give emissions performance real weight. Planners and account teams need explicit permission to choose a slightly more expensive option when it delivers a clearly better emissions outcome. Organisations that combine these measures report substantial emissions reductions on specific lanes while maintaining competitive service and cost positions.

FACING THE SCEPTICS

Three objections tend to surface. The first is cost: decarbonisation will erode margins. The second is

complexity: Scope 3 accounting and multi-actor coordination will overwhelm teams. The third is fairness: strict demands will hurt smaller actors and emerging markets. On cost, the picture is more nuanced than many expect. Some decarbonisation technologies are still expensive and will require careful phasing. But many of the largest near-term levers – energy efficiency, better asset utilisation, mode shift where infrastructure already exists – save money as well as carbon.

On complexity, visibility and coordination are hard, but the capabilities that sustainability demands – network mapping, data integration, collaboration across partners – are the same ones needed for geopolitical risk, cyber-resilience and demand volatility. Sustainability does not create complexity; it makes existing complexity visible and gives executives a way to address it.



On fairness, stricter expectations will challenge smaller actors and lower-income countries. The answer is not to suspend climate limits, but to design a just transition: shared infrastructure infrastructure, blended finance for cleaner assets, technical support, phased timelines and capacity-building embedded in commercial relationships. Shippers start using their purchasing power and treat decarbonisation as a joint challenge rather than a checklist to push down the chain.

LEADING WHEN NATURE SETS THE TERMS

Once nature, law and capital define the boundaries of the game, leadership itself changes. The leaders will be the companies that design logistics networks, digital systems and business models to thrive inside those boundaries – and help their partners do the same. Boards must treat sustainability as a structural design parameter in strategy and capital allocation. Network, asset and partnership decisions should be stress-tested against plausible climate and regulatory scenarios, and executive

incentives should reflect costs, services and carbon together. The role of supply chain and logistics officers is expanding. They are no longer just stewards of cost and reliability; they become architects of carbon-bound networks, integrating physical flows, data flows and financial flows into a single system. Leaders are coalition builders, able to align shippers, carriers, technology partners and regulators around shared constraints. For policymakers, logistics should be seen as both risk and remedy.

The task is not only to tighten rules, but to provide clarity and support: predictable regulatory paths, harmonised standards and targeted investments that de-risk low-carbon infrastructure digital control systems and the circular flows that ride on them. The defining question is who learns to design advantage within the bounds. In a world where nature sets the terms, the true mark of leadership is keeping the economy moving without breaking the system that makes any economy possible.

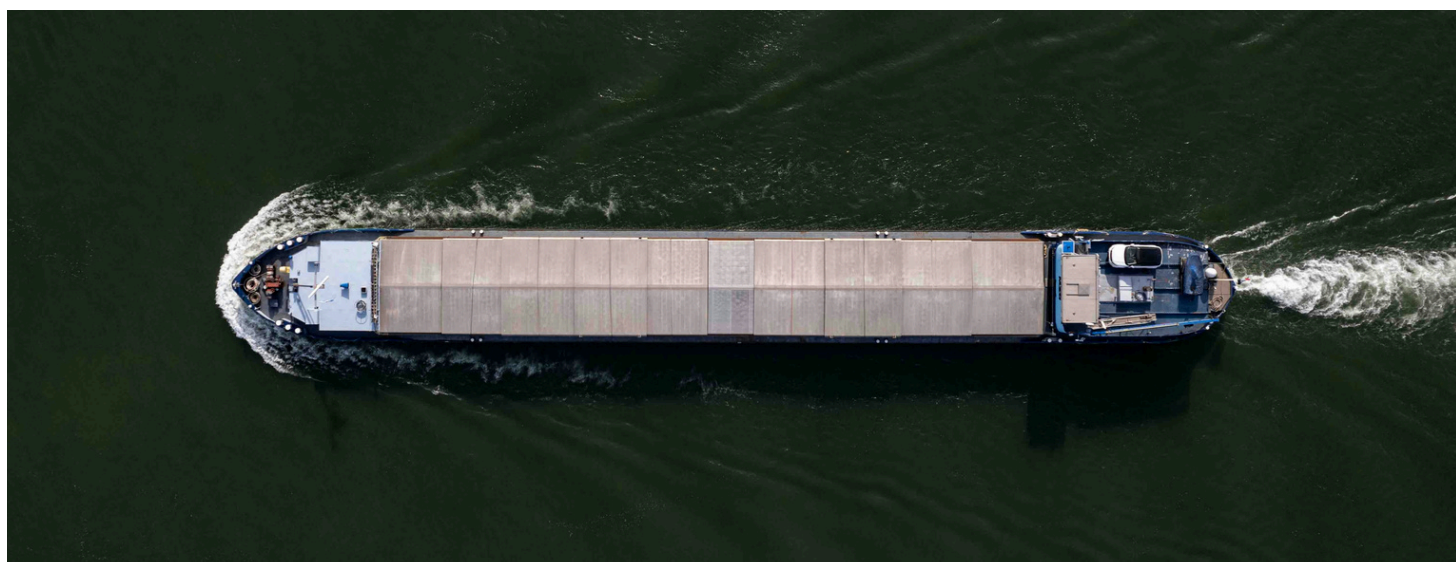


Wolfgang Lehmacher

Global Supply Chain Advisor & Former Director, World Economic Forum

Wolfgang Lehmacher is a renowned expert in global supply chain and logistics. The former director at the World Economic Forum and CEO Emeritus of GeoPost Intercontinental serves as an advisory board member of The Logistics and Supply Chain Management Society in Singapore, an ambassador for F&L in Brussels, and an advisor to RISE.

He contributes to the knowledge base of Supply Chain Innovation.



The Trade Show for Intralogistics, Robotics and Automation, Supply Chain Management, Industrial Cleaning, and Processing & Packaging



Explore the latest in automation, robotics, industrial cleaning, and processing innovation at CeMAT Southeast Asia 2026, the region's leading event for food, beverage, and packaging industries.

Discover technologies driving efficiency, safety, and sustainability, connect with global suppliers, and see how top brands are transforming operations across the supply chain.

Why you can't miss it:

- Compare the latest in automation and intralogistics throughout the CeMAT exhibition floor
- Explore innovative processing and packaging solutions with a focus on efficiency and sustainability within Processing and Packaging
- See how ICHS addresses industrial hygiene and safety pain points, essential for food safety and compliance
- Discover end to end solutions covering everything from production to shipping.

Visit cematseasia.com to pre-register for the event or to enquire about becoming an exhibitor.



12–14 May 2026 • Singapore Expo



Deutsche Messe

APAC's Supply Chain Moment - and Why Capability, Not Just Capacity, Will Define the Future

OP-ED By Rafael P. Soriano, ISM APAC Regional Representative

Across the AsiaPacific (APAC) region, supply chains are no longer simply engines of growth. They have become instruments of resilience, risk management, sustainability, and competitive advantage. For leaders across procurement, logistics, and supply management, this shift has been both sobering and clarifying: scale alone is no longer enough. What APAC supply chains need now is capability - deep, transferable capability that can withstand disruption, adapt to regional complexity, and align with global expectations.

APAC is uniquely positioned at the center of the global economy. It is home to some of the world's most sophisticated manufacturing ecosystems, fastestgrowing consumer markets, and most complex regulatory environments. Yet that same diversity introduces persistent challenges.

Geopolitical tension, climate driven disruptions, regulatory fragmentation, and uneven digital maturity have exposed structural vulnerabilities across regional supply networks. This is where professional capability development becomes mission critical. Unlike many regions

that rely heavily on centralized or standardized supply chain models, APAC organizations often operate across widely varying levels of market maturity, infrastructure readiness, and workforce development. Multinational organizations must align global standards with local realities, while regional firms prepare to compete on a global stage.

Both face the same question: how do we build supply management capability that is globally credible, locally relevant, and future ready? The Institute for Supply Management (ISM) plays a distinctive role in answering that question. As a global, nonprofit standardsetter for the profession, ISM does not represent a technology

platform, consulting agenda, or regional interest. Its value lies in something more enduring: a common language for supply management excellence and a globally recognized framework for developing people, not just processes.

Globally recognized certifications such as CPSM®, and APSM® provide more than credentials; they offer a shared foundation of knowledge and ethical practice that travels across borders, industries, and economic cycles. In a region where talent mobility is high and supply chains span dozens of jurisdictions, this portability of capability is a strategic asset. Equally important is ISM's emphasis



on competency based development. By focusing on end to end supply chain mastery - from sourcing and negotiation to risk management, sustainability, and leadership - ISM supports organizations in building depth, not dependency. This approach is especially relevant in APAC, where rapid growth can outpace institutional knowledge and where leadership pipelines must be continuously replenished. Beyond education, ISM's role as a convener of research, insights, and peer learning offers APAC leaders something increasingly rare: perspective. In an environment saturated with tactical solutions and short term fixes, supply management leaders benefit from stepping back to understand emerging risks, shared challenges, and proven practices across regions. Neutral, practitioner driven insight helps organizations

avoid reactive decision making and instead invest in capabilities that compound over time. Looking ahead, APAC supply chains will continue to evolve - diversifying sourcing locations, accelerating digital adoption, and responding to heightened expectations around transparency and sustainability. The organizations that succeed will be those that treat supply management as a strategic profession, not a transactional function. Capability is the quiet advantage. It is built through disciplined learning, shared standards, and a commitment to developing people who can lead through uncertainty. By advancing the strategy and practice of supply management globally, ISM is well positioned to support APAC's next chapter - helping supply chains not only endure disruption, but shape a more resilient and sustainable global economy.



Rafael Soriano

APAC Regional Representative, ISM

Rafael Soriano supports ISM's expansion across APAC. His role focuses on building awareness, fostering partnerships, and creating localized member communities that reflect the region's unique needs and opportunities. Drawing on decades of experience in business development, strategic partnerships, and market expansion, Rafael has led initiatives for global organizations and associations across APAC.

His background includes developing tailored market strategies, cultivating corporate and academic partnerships, and driving certification adoption in competitive environments. He strives to advance ISM's mission by promoting world-class certifications and empowering professionals with practical knowledge, global credentials, and strong networks to build resilient supply chains.



Cost, Speed, and SAF in Aviation's Changing Equation

Feature Article By Fox Chen, Analyst Southeast Asia, ARC Advisory Group

The aviation sector has historically been driven by two fundamental imperatives: cost efficiency and speed. Airlines and freight operators run on thin margins, high asset utilization, and tightly coordinated schedules, where fuel efficiency, load factors, and turn around times directly affect profitability.

Speed is not just a service feature but part of the economic logic of air transport, particularly in cargo segments where time-sensitive delivery justifies a structural premium over other modes. Within this system, maintaining operational continuity has typically taken priority, given how quickly disruptions can cascade across global networks.

For a long time, sustainability sat outside this core trade-off space. It was tracked and reported but rarely integrated into the same decision logic as cost and speed. What has changed is the increasing integration of emissions into corporate performance measurement. Scope 3

accounting has extended emissions responsibility beyond direct operations into value-chain activities. Across many sectors, Scope 3 emissions are estimated to account for the majority of total emissions, often around three-quarters on average, though this varies by industry. This includes logistics and transport services that companies depend on but do not directly control.

As a result, transport activity is no longer external to corporate emissions performance. It now feeds into ESG disclosures, investor expectations, and procurement frameworks. This does not replace cost or service

requirements but introduces emissions performance as an additional constraint alongside them. Aviation is particularly exposed because of its emissions intensity. Air freight typically emits around 500 to 600 g CO₂ per ton-km, compared with roughly 10 to 40 g CO₂ for maritime shipping. Even when used selectively, aviation can account for a disproportionate share of transport-related emissions in Scope 3 inventories, while remaining difficult to substitute due to reliance on speed and reliability for high-value goods such as electronics and pharmaceuticals.





WHY SAF IS CENTRAL TO AVIATION DECARBONIZATION BUT CONSTRAINED IN SCALING

Within the limited scope for operational efficiency gains such as routing optimization or load factor improvements, emissions reductions remain incremental. The primary structural lever therefore sits in the fuel itself, where sustainable aviation fuel (SAF) becomes central. SAF is a widely recognized near-term decarbonization option because it functions as a drop-in fuel.

It can be blended with conventional jet fuel and used within existing aircraft and airport infrastructure without major modifications. Depending on the production pathway, SAF can deliver lifecycle emissions reductions compared with fossil-based jet fuel, making it compatible with today's aviation system. Global production remains limited at around 0.3 percent of total jet fuel demand in 2024, despite recent growth. Scaling SAF production is less a question of technological readiness than of

how supporting inputs and systems expand in parallel. Multiple production routes already exist and are technically viable, including bio-based SAF from waste oils and residues, and synthetic fuels produced through power-to-liquid pathways using captured carbon and renewable electricity. The binding constraints lie in scaling these inputs in practice. Feedstock supply for bio-based SAF is limited and unevenly distributed, while synthetic pathways depend on access to renewable electricity, hydrogen, and carbon sources at scale.

These inputs are simultaneously required across broader energy transition pathways, which increases competition for limited resources. Beyond inputs, expansion of production facilities and the build-out of certification and blending infrastructure are required to support wider market integration. These elements determine how

quickly production capacity can translate into usable supply across regions. Together, these constraints shape both supply availability and cost formation. SAF remains more expensive than conventional jet fuel due to production complexity and limited economies of scale. Where supply remains tight, costs stay elevated. Where costs stay elevated, adoption remains selective, which limits demand aggregation and weakens investment visibility.

This interaction between supply, cost, and scale keeps expansion gradual rather than exponential. Scaling SAF depends on how demand signals, policy direction, and supply investment evolve together as the market transitions from pilots toward more structured deployment. Rather than operating independently, these elements begin to reinforce each other as expectations around long-term demand become clearer.

POLICY AND MANDATES AS DEMAND ANCHORS

Policy plays a defining role in shaping SAF adoption through blending mandates that set minimum usage requirements over time. In Europe, this is reflected through the ReFuelEU Aviation framework, while in Asia, countries such as Singapore and Thailand are introducing early-stage SAF frameworks and levy mechanisms. These measures shift SAF from voluntary commitments toward regulated fuel demand, establishing a clearer baseline for future consumption. While they do not resolve production or cost constraints, they help anchor long-term demand expectations

in a way that supports investment planning across the value chain. In this sense, policy acts less as a driver of immediate scale and more as a stabilising structure that reduces ambiguity around future demand. Its effectiveness depends on how well it is aligned with commercial commitments that translate expectations into contracted volumes.

CORPORATE COMMITMENTS AND THE EMERGENCE OF DEMAND STRUCTURE

The more immediate driver of scale is the increasing role of corporate commitments across the aviation value chain. Airlines, logistics operators, and corporate customers are progressively entering long-term offtake agreements for SAF, improving demand visibility and strengthening the investment case for new production capacity. Logistics operators are particularly significant in this shift. While aviation emissions sit within airlines' direct footprint, logistics providers are embedded within the Scope 3 emissions of their customers.

This positions them as a key transmission channel through which decarbonization requirements from other industries translate into aviation fuel demand. As a result, emissions considerations are increasingly embedded into procurement decisions rather than treated as voluntary ESG initiatives. In practice, SAF adoption is also enabled through book-and-claim systems, where environmental attributes are decoupled from physical fuel flows and allocated via certificates. This mechanism helps aggregate

demand even when physical supply remains constrained. This is gradually forming a more segmented demand structure. Freight-linked demand is increasingly long-term and commitment-driven, while passenger aviation remains more sensitive to pricing and cost pass-through constraints. Across both segments, SAF demand is becoming more structured and persistent rather than experimental.

TECHNOLOGY AS AN ENABLING SCALING LAYER

Alongside demand, policy, and supply-side development, technology plays a supporting role in improving coordination rather than removing structural constraints. While SAF production pathways are already established, scaling requires coordination across feedstocks, production routes, and geographies. Digital and industrial technologies such as process simulation, predictive modelling, digital twins, and AI-enabled optimization improve operational visibility and system coordination across

these layers. These tools support feedstock planning, production efficiency, and variability management in renewable inputs, improving how systems operate rather than changing underlying constraints such as resource availability or infrastructure limits.

BEYOND COST AND SPEED

Aviation makes visible what is becoming true across logistics more broadly. Sustainability is no longer a parallel objective managed separately from cost and speed. It is now part of the same operating equation, evaluated against the same business logic and subject to the same real-world constraints. For SAF, the path forward is a coordination challenge as much as a production one. Demand commitments, policy direction, and supply investment each matter, but their impact depends on how effectively they develop together. Over time, this interdependence works in both directions: demand visibility improves investment certainty, capacity expansion moderates cost pressures, and lower costs support broader adoption.



No single lever resolves the others, but alignment across them creates the conditions for scale. What is also shifting is the frame through which these decisions are made. Fuel strategies are no longer evaluated purely on cost and emissions performance alone.

Considerations around supply continuity, predictability, and operational stability are becoming more visible within procurement and planning decisions. In this sense, resilience is beginning to feature more explicitly in how fuel and logistics decisions are assessed, although still within the broader framework of cost,

speed, and sustainability rather than as a standalone objective. For an industry that remains essential to global connectivity and structurally difficult to decarbonize, the path forward is towards a more integrated operating equation.

The balance between cost, speed, and sustainability is becoming more tightly coupled with system reliability considerations, where decisions are made across overlapping operational and supply constraints rather than optimizing against a single variable. This expanded framing is where aviation & the next phase of evolution is likely to be defined.



Fox Chen

**Analyst Southeast Asia,
ARC Advisory Group**

Prior to joining ARC, Fox was in the intellectual property (IP) industry for more than seven years. At Panasonic, he supported different IP functions, primarily in the area of LTE and H.264 video codec, as a patent analyst. He then ventured into the industrial automation space with Yokogawa Engineering Asia, working as a patent engineer to support Yokogawa's digitalization journey through IP.



LogiSYM 2026 ASIA PACIFIC

**“Converging Forces: Human, Digital and Circular Supply Chains”
Uniting People, Technology, and Sustainability for Resilient and
Accountable Global Trade**

13 - 14 May 2026 | SINGAPORE EXPO

Platinum Partners:



Gold Partners:



Strategic Supporting Partners:



**SCAN HERE TO
REGISTER**



**OR CONTACT US AT
info@logisym.org**



The Signals Were There: Reading Freight Market Turning Points Before They Become Crises

OPED By Peter Sand, Senior Analyst, Xeneta

When disruption hits, the market moves fast – but never without warning. The real question is whether those signals are recognized early enough to act. For procurement teams across Asia-Pacific, the Strait of Hormuz crisis is one of the most significant freight shocks in recent years. And despite the US-Iran ceasefire agreed on 8 April 2026, the disruption is far from over.

Carriers remain cautious, alternative routings are still in place, and elevated freight rates are likely to persist. Around 250,000 TEU of weekly capacity has been displaced. But this is not a temporary pause – it is a structural shift. The market isn't simply reverting; it has already reset, and the consequences are still unfolding. None of this came without warning.

In the weeks leading up to the closure, the risk of escalation was rising – and the signals were visible. Reliability on key corridors was slipping, rate dynamics were shifting, capacity adjustments were underway, and risk premiums were increasing across Middle East routes. Organizations with the right monitoring in place were already scenario planning. Others were forced into reactive decision-making as the crisis

unfolded. And this is not unique to Hormuz. Freight markets rarely turn without signalling first – long before headline rates catch up.

MARKET TURNING POINTS START BEFORE RATES MOVE

One of the most persistent misconceptions in freight procurement is that markets “move” when rates change. In reality, by the time headline rates adjust, the underlying shift is already well underway. Xeneta data consistently shows that early signals emerge across three areas: contract behaviour, operational performance, and carrier network activity. These changes often appear weeks before they are reflected in index movements or benchmark pricing.

This creates a narrow but critical window. During this period, capacity is tightening, but pricing has not yet fully reacted. Procurement decisions made in this phase, whether to secure capacity, adjust allocations, or revisit exposure, have a disproportionate impact on cost outcomes. A short lead time is often enough to anchor materially different rate levels for an entire quarter.

READING THE SIGNALS THAT MATTER

The indicators themselves are not new. What matters is how they are interpreted together. From what we observe across global and APAC trade lanes, early-stage disruption



typically presents through four consistent signal categories:

Rate divergence is often the earliest signal. When the spread between the lowest and highest rates paid begins to widen, it indicates a breakdown in market alignment. During the Red Sea disruption, this spread expanded from approximately USD 2,380 to over USD 7,100 per FEU. This is not simply pricing volatility; it reflects capacity being repositioned and carriers applying differentiated pricing strategies in response to emerging constraints.

Operational Performance Deterioration – reliability tends to decline before rates rise. As carriers begin adjusting networks, whether through rerouting, port omissions, or schedule changes, on-time performance deteriorates. What may initially appear as a service issue is often an early indicator of structural change. In our data, sustained drops in schedule reliability are one of the most consistent precursors to tightening market conditions.

Fuel Cost Pressure – Fuel markets provide an additional forward signal. During periods of geopolitical instability, bunker fuel spreads can diverge significantly across regions – often exceeding USD 100 per ton. This cost pressure feeds directly into carrier economics but is not immediately reflected in freight rates. The lag between rising fuel costs and freight rate adjustments creates a window where pricing has not yet caught up to underlying cost structures.

Network and Capacity Adjustments – as these pressures build, they begin to reshape carrier networks. We observe changes in port rotations, the emergence of alternative hubs, and shifting capacity across trade lanes. For example, increased activity in ports such as Nhava Sheva reflects how carriers actively rebalance networks under pressure. These adjustments are early-stage responses to anticipated

constraints. Individually, each of these signals can be explained. Taken together, they form a pattern that consistently precedes market turning points.

THE RED SEA PATTERN– NOW REPEATING

The Red Sea disruption followed this sequence clearly. Reliability declined first, as carriers rerouted vessels and extended transit times. Capacity tightened across affected corridors, and rates escalated as a result.

Organizations that were monitoring these signals acted earlier, securing capacity and diversifying routing options before the market fully repriced. Those relying on rate indices alone entered the market later, when pricing had already adjusted. The same pattern is now visible in the current environment. Despite the ceasefire, carriers have not fully returned to previous routings through the Strait of Hormuz. Alternative routes remain in place, capacity is constrained, and market signals – including rate dispersion and reliability volatility – continue to point toward structural imbalance.

WHY ASIA-PACIFIC MAKES SIGNAL INTERPRETATION MORE COMPLEX

In Asia-Pacific, these signals are both more visible and more difficult to interpret. The region's dense network of trade lanes and high intra-Asia volatility mean disruption does not manifest uniformly. Large hubs such as Shanghai can absorb and redistribute pressure, delaying visible



impact. Others, such as Laem Chabang, tend to reflect network changes more directly. Singapore often shows disruption first through transit time variability rather than volume shifts. This creates a fragmented signal environment. A trade lane may show stable pricing while reliability deteriorates. A port may maintain throughput while schedules become less predictable. No single metric provides a complete view. In this context, the advantage lies in connecting signals across rates, performance, fuel, and network behaviour to build a forward-looking view of the market.

FROM SIGNAL TO ADVANTAGE

Early signals only create value when they are acted upon. What we consistently see is that organizations that monitor and interpret these indicators systematically are able to move earlier – securing capacity, adjusting sourcing strategies, and engaging carriers before pricing fully adjusts. The impact is measurable. The Implementation Gap Access to market data is no longer the limiting factor. The gap we observe is in how that data is implemented. Effective early-warning capability depends on specific decisions:

- Which trade lanes are prioritized
- Which signals are monitored consistently
- How frequently they are reviewed
- And how insights are translated into predefined actions

Just as important is organizational readiness. A signal identified weeks before a rate increase only creates value if procurement teams have the mandate, processes, and carrier relationships to act within that window. Monitoring capability and decision capability are inseparable.

TURNING SIGNALS INTO STRATEGY

Freight markets move through identifiable patterns. The signals that indicate change are already visible in real time. The advantage lies in recognizing those signals early enough to act – using market intelligence not only to understand what is happening, but to anticipate what comes next. As volatility becomes more frequent and interconnected, this is no longer an advanced capability.

It is becoming a baseline requirement for procurement teams operating in global and APAC trade environments. Organizations that make this shift gain more than cost control. They gain timing advantage – and with it, the ability to act before disruption becomes embedded.

For those looking to operationalize this in practice, Xeneta will be hosting a roundtable at LogiSYM Singapore, 13–15 May 2026 – Market Intelligence Deep Dive: From Data to Boardroom Leverage. The session will explore how to build early - warning monitoring into day-to-day decision-making. Seats are limited.



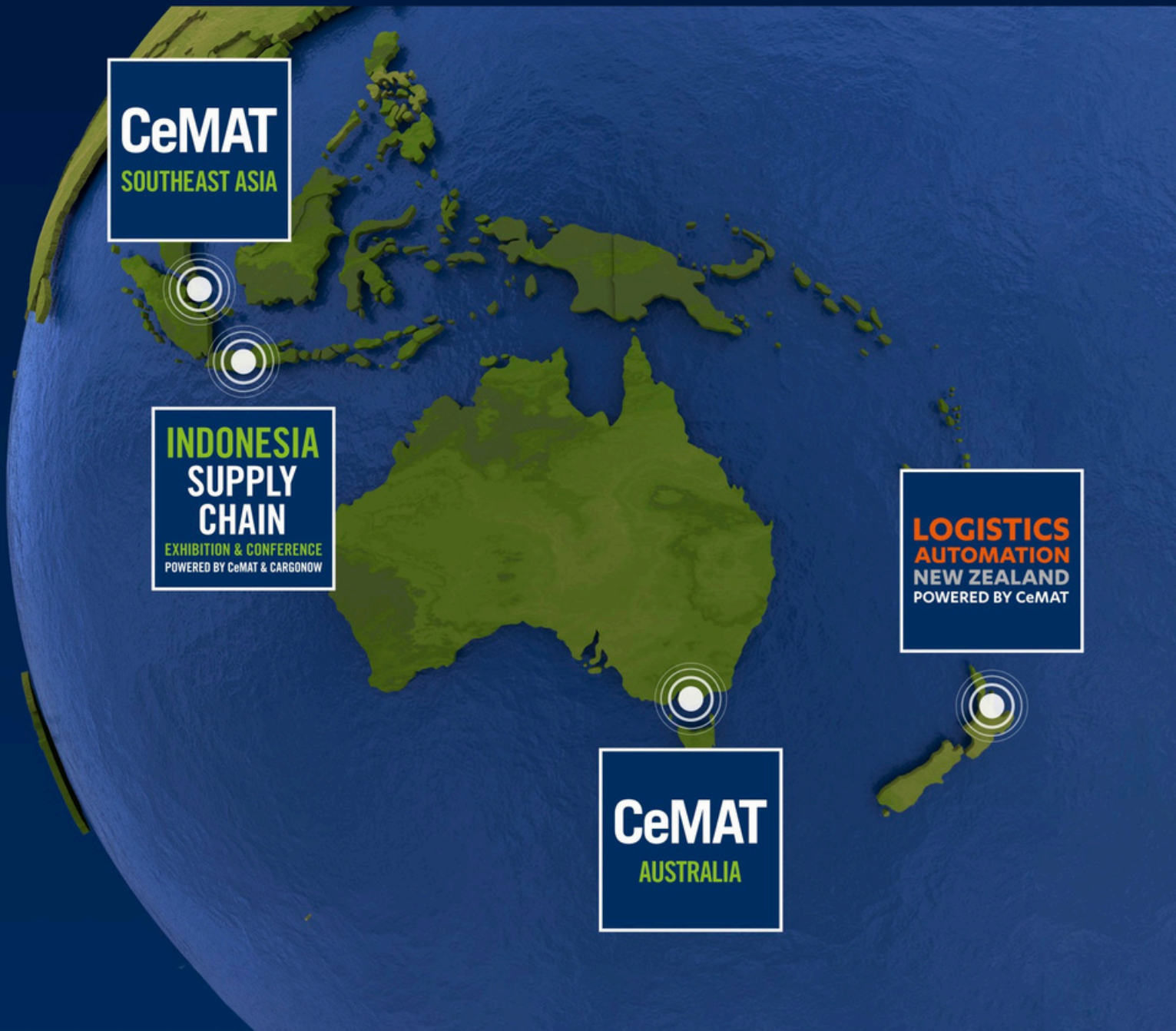
Peter Sand

Senior Analyst, Xeneta

Peter Sand joined Xeneta in 2021, as the Chief Analyst. Heading a team that delivers expert insights on container shipping and air cargo industries - from a logistics perspective. Focus on the essential drivers, demand and supply - and obviously the freight rates that impacts us all. Xeneta is the leading ocean freight rate benchmarking and market intelligence platform transforming the shipping and logistics industry.

Throughout his career, Sand has been regarded for his widely read articles and industry insights, as well as his regular appearances on global news networks such as CNN, BBC, CNBC and Bloomberg. He holds a Master's in Economics from the University of Copenhagen.

The Trade Shows for Intralogistics, Robotics and Automation, and Supply Chain Management.



CeMAT Southeast Asia	12–14 May 2026	Singapore Expo, Singapore	cematseasia.com
CeMAT Australia	23–25 June 2026	MCEC, Melbourne , Australia	cemat.com.au
Logistics Automation NZ	10–11 Nov 2026	Auckland Showgrounds, New Zealand	logisticsautomation.co.nz
Indonesia Supply Chain	25–27 Nov 2026	NICE, Jakarta, Indonesia	indosupplychain.com

Partners



Organiser



Deutsche Messe

Balancing Cost, Speed, & Sustainability: Sustainability Integration as System Imperative

Feature Article By Kim Winter, Global Managing Director, Logistics Executive Group

The logistics sector has always operated under pressure, but today's environment has redefined what pressure truly means. Cost discipline, delivery speed, and sustainability are no longer competing priorities to be traded off against one another. They are simultaneous, non-negotiable imperatives. The reality is stark: if your operating model cannot deliver all three, it is no longer fit for purpose. What has changed is not simply the ambition but the context. The ongoing geopolitical disruption across the Middle East has fundamentally reshaped global supply chains, exposing vulnerabilities while accelerating the need for structural transformation.

THE NEW OPERATING REALITY: A TRIPLE CONSTRAINT

Logistics leaders today are managing what can only be described as a "triple constraint" profitability, velocity, and carbon accountability. Historically, the industry optimized for cost and speed. Sustainability sat adjacent, often treated as a compliance exercise or a brand positioning lever. That era is over. Sustainability is now embedded into the operational core. Why? Because the

ecosystem demands it. Regulators are enforcing emissions transparency. Investors are allocating capital based on ESG performance. Customers particularly multinational corporates are embedding carbon metrics into procurement decisions. And governments are introducing green mandates that directly impact route design, fuel selection, and network configuration. In short, sustainability is no longer optional it is operational.

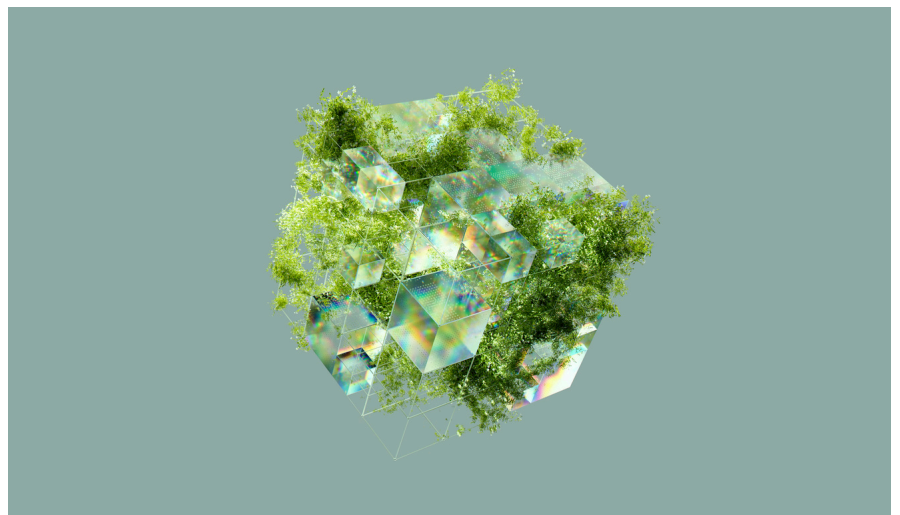
GEOPOLITICAL DISRUPTION: THE CATALYST FOR CHANGE

The Middle East conflict has acted as an accelerant to this shift. What began as a regional crisis has evolved into a systemic disruption of global

trade flows. Shipping routes through critical chokepoints such as the Strait of Hormuz have been severely impacted, with capacity reductions and rerouting driving increased transit times and cost volatility. Energy markets have experienced unprecedented disruption, with supply shortages described as among the most severe in modern history, pushing fuel costs higher and directly impacting logistics economics.

SUSTAINABILITY AS A SYSTEM IMPERATIVE

The industry's response cannot be incremental. It must be systemic. Sustainability is no longer about isolated initiatives



electric vehicles here, carbon offsets there. It requires integration across the entire logistics value chain. This means:

- Embedding emissions data into every operational decision.
- Designing networks that minimize both cost and carbon intensity.
- Leveraging digital platforms to optimize routing, load factors, and energy consumption.
- Aligning procurement strategies with sustainability criteria.

The shift is from reporting sustainability to operating sustainably. Critically, emissions data is becoming as important as cost data. If you cannot measure it, you cannot manage it. And if you cannot manage it, you will not win business—particularly with multinational clients operating under stringent ESG frameworks.

THE COST-SPEED-SUSTAINABILITY EQUATION

Let's be direct: there is no silver bullet. Balancing cost, speed, and sustainability requires trade-offs but it also demands innovation. The leaders in this space are not those making compromises. They are those redesigning the equation entirely. We are seeing three clear strategic responses emerging:

Network Reconfiguration with Intent:

Organizations are diversifying supply routes, nearshoring production, and building regional distribution hubs. This is not just about resilience it is about reducing transport distances and emissions intensity. The Middle East, despite current disruptions, remains strategically positioned as a global logistics bridge linking Asia, Europe, and Africa. The opportunity is to evolve it into a circular logistics corridor, where sustainability and resilience are embedded into network design.

Digitalization as an Enabler:

Advanced analytics, AI, and real-time visibility platforms are transforming how logistics decisions are made - Predictive models can optimize routes for both cost and carbon. AI-driven planning tools can dynamically adjust networks in response to disruptions. And digital twins can simulate the environmental impact of different operational scenarios. This is where the real competitive advantage lies not in reacting faster, but in anticipating better.

Energy Transition and Fuel Strategy:

Fuel is now both a cost driver and a sustainability lever - The current energy crisis driven by Middle East disruptions has exposed the fragility of traditional fuel dependency. Forward-thinking organizations are accelerating the adoption of sustainable aviation fuel (SAF), alternative marine fuels, and electrification where feasible. While these solutions come at a premium today, they are rapidly becoming table stakes.



THE ROLE OF LEADERSHIP

This is not a technology challenge. It is a leadership challenge. The organizations that will succeed are those that:

- Take a long-term view, despite short-term volatility
- Invest ahead of the curve in sustainable infrastructure and capabilities
- Drive cultural change across their organizations
- Recruit, engage, develop leaders and team members committed & rewarded to align commercial strategy with sustainability outcomes

There is a tendency in times of crisis to revert to short-term thinking to prioritize cost above all else. That is a mistake. The current geopolitical environment is not a temporary disruption. It is a structural shift.

A MORE COMPLEX, YET MORE STRATEGIC FUTURE

The global supply chain landscape is entering a new phase, one defined by complexity, volatility, and heightened expectations. Cost pressures are rising.

Delivery expectations are accelerating. Sustainability requirements are tightening. At the same time, geopolitical risks are becoming a permanent feature of the operating environment. This combination is forcing a fundamental rethink of how supply chains are designed and managed. The traditional model optimized for efficiency in stable conditions is no longer viable. What replaces it is a more dynamic, data-driven, and sustainability-integrated model.

FINAL THOUGHT: NO TRADE-OFFS, ONLY TRANSFORMATION

Let us be clear: the idea that organizations must choose between cost, speed, and sustainability is outdated. The real question is whether they are willing to transform their operating models to deliver all three. Because the market will not accept anything less. Sustainability is no longer a reporting line it is a system imperative. And in a world defined by disruption, enterprises & leaders that integrate it into the core of their logistics strategy will not only survive, they will thrive. The rest will be left managing yesterday's problems in tomorrow's market.



Kim Winter

Founder & Group Managing Director Logistics Executive

The founder of Logistics Executive Group, Kim delivers 40 years of executive leadership experience spanning Executive Search & Recruitment, Leadership Development, Executive Coaching, Corporate Advisory, Consulting & M&A, Media Interviews & Podcasts, across the Supply Chain, Logistics, 3PL, Ecommerce, Life Science, Cold Chain, FMCG, Retail, Maritime, Defence, Aviation, Resources & Industrial sectors.

He is a regular contributor of thought leadership to industry and media, is a professional Master of Ceremonies and is frequently invited to chair / moderate face-to-face international events and media platforms.



UBTS x CuberAI: Agentic AI transformation Best Practice Use Case

Advertorial By NG Chee Kong, Vice President & Managing Director, Cuber A.I.

INTRODUCTION

This document summarizes the digital transformation journey of UBTS, a Singapore-based logistics company, through its partnership with CuberAI. By implementing AgenticX, an Agentic AI-powered platform, UBTS successfully transitioned from manual, paper-based operations to a fully digitized, data-driven workflow. This case study highlights the significant impact of Agentic AI in the supply chain sector, showcasing improvements in productivity, efficiency, and transparency.

THE AI AGENT: AGENTICX

CuberAI's AgenticX platform functions as a 'Digital Employee'

designed to automate and streamline structured logistics workflows. It integrates seamlessly with existing communication and management tools to centralize information, automate tasks, and provide real-time visibility. The platform's core strength lies in its ability to interpret unstructured communications (like WhatsApp messages and emails) and convert them into actionable, structured data, thereby reducing human error and increasing operational speed.

KEY FUNCTIONALITIES

The AgenticX platform introduced a suite of capabilities that modernized

UBTS's core operations:

Automated Order Processing: Centralizes order capture from various channels like WhatsApp and email, eliminating manual data entry.

Intelligent Dispatch: Automates the dispatch process, assigning jobs to drivers and vehicles efficiently.

Real-Time Tracking and Logging: Provides live visibility into job progress, with updates logged automatically.

Automated Invoicing: Instantly generates and issues invoices upon job completion, drastically reducing billing cycles.

Metric	Before agenticX	After agenticX
Productivity	~80 jobs per month	200+ jobs per month
Billing Lag	5–10 business days	Same-day issuance
Labor Efficiency	Standard	3–5x improvement
Operational Model	Manual, paper-based	Digitized, data-driven
Data Transparency	Low (siloeed)	High (centralized)
Driver Idling time	In hours	In minutes

Table 1: Performance metrics before and after agenticX

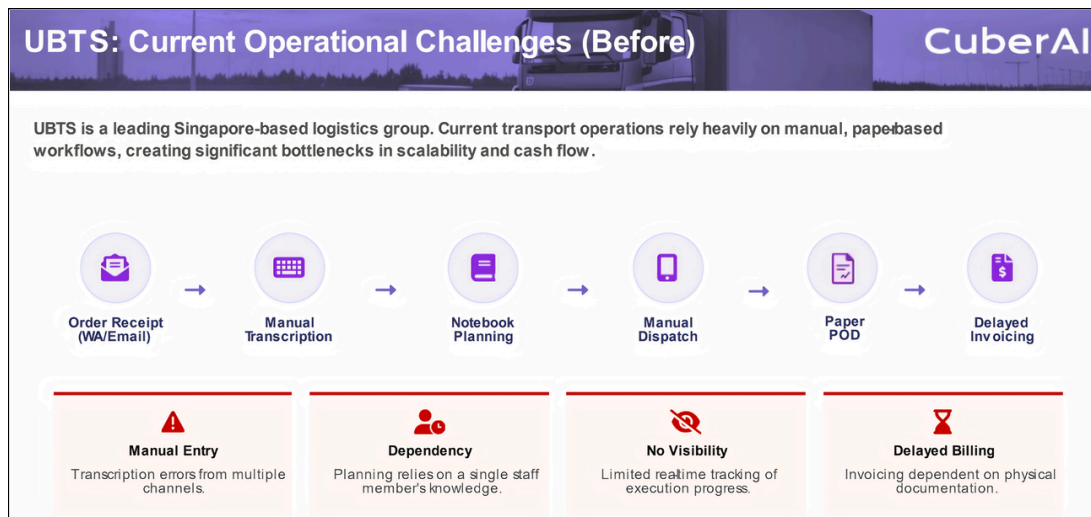


Diagram 1: 'Before' scenario

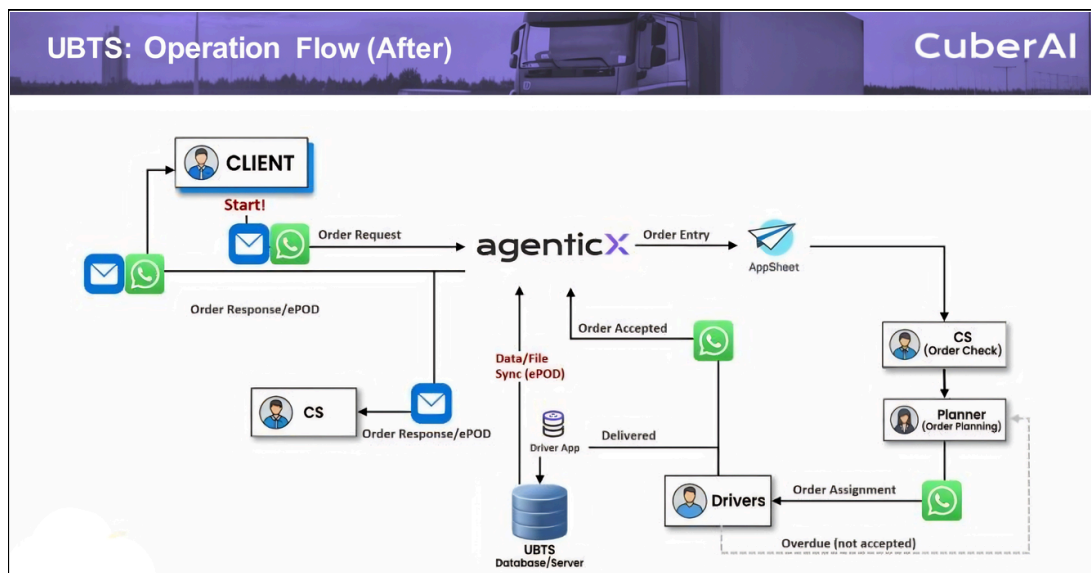


Diagram 2: 'After' scenario

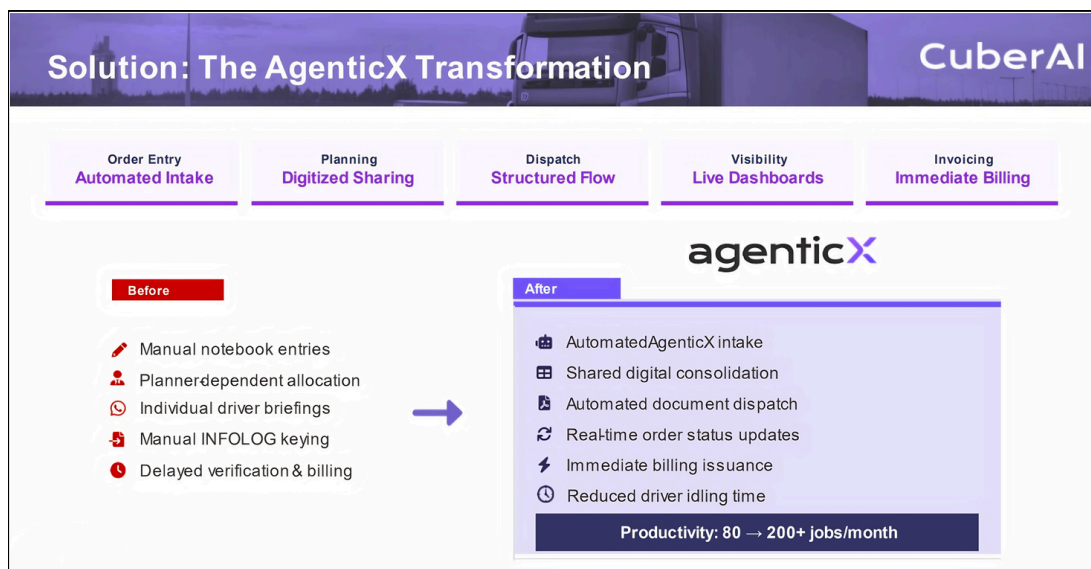


Diagram 3: The AgenticX Solution

Seamless Integration: Connects with essential tools including WhatsApp, email, Google Workspace, and the INFOLOG system to create a unified operational view.

KEY BENEFITS & MEASURED IMPACT

The implementation of AgenticX yielded substantial and measurable improvements across UBTS's operations, delivering a significant return on investment and enhancing overall business performance.

KEY IMPACT HIGHLIGHTS

Enhanced Transparency: Real-time visibility into job status for all departments, from customer service to finance, improving client communication and issue resolution.

Improved Employee

Satisfaction: By automating repetitive and stressful manual tasks, the platform allowed the team to focus on higher-value activities, boosting morale and reducing dependency on a few key planners.

Scalability: The new system provides a scalable foundation, enabling UBTS to grow its business without a proportional increase in manpower.

The detailed workflow improvements achieved from AgenticX deployment are illustrated in Annex A, diagram 1 to 3.

CONCLUSION

The UBTS and CuberAI collaboration serves as a powerful case study for the logistics industry, demonstrating that Agentic AI can be a practical and transformative tool.

It highlights that successful digital transformation is not merely about technology, but about a holistic approach that includes leadership vision, operational readiness, and empowering the workforce. The journey of UBTS underscores how SMEs can leverage AI to achieve operational excellence and build a competitive edge in a rapidly evolving digital landscape.

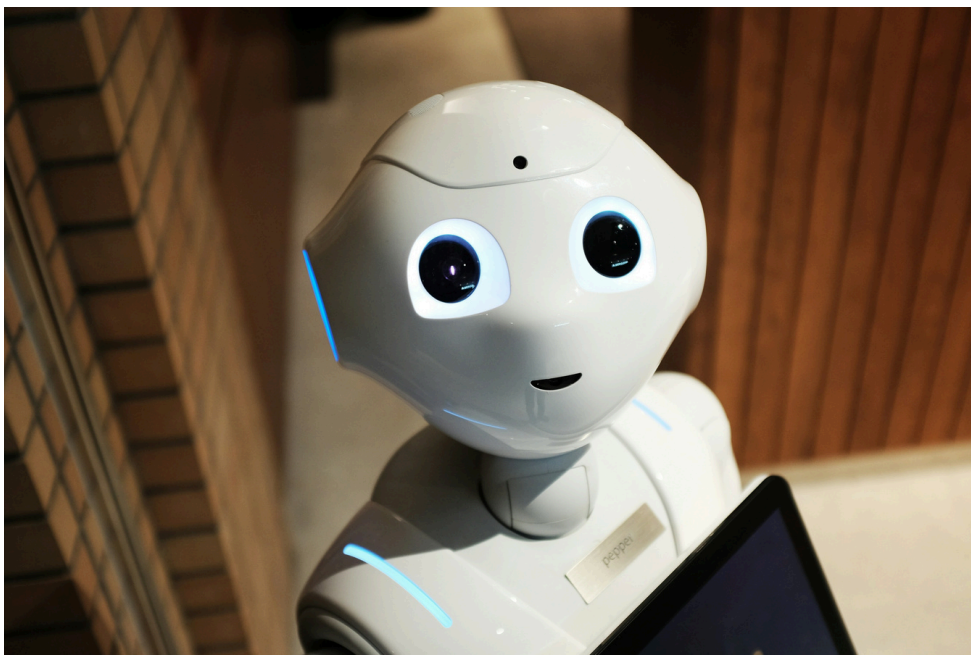


NG Chee Keong

Vice President & Managing Director, Cuber A.I.

NG Chee Keong (CK) is the Managing Director of Cuber AI. He graduated from the University of Western Sydney with a degree in Information Technology, majoring in Data Communications. With over 30 years of experience in sales and management across the enterprise technology sector, CK has dedicated his career to advancing innovation and commercialization in artificial intelligence and digital supply chain technologies.

CK has deep expertise in digital trade, AI hyperautomation, and Agentic AI technologies. He has led multiple high-impact international business development and system innovation projects, including scaling a strategic maritime booking platform to achieve 300% annual growth, and pioneering a Digital Employee Solution that integrates business operations with Agentic AI.



Institute for Supply Management® (ISM®)



ismworld.sg

Activate your membership by
December 23, 2026 and save using
promo code **JOINS26SG.**

Environmental and Competitive Advantages of Sustainability in the Global Supply Chain

Advertorial By Evan Armstrong, Chief Executive Officer at Armstrong & Associates, Inc. (A&A)

Sustainability in the global supply chain is becoming increasingly important. There are a growing number of customers of Third-Party Logistics Providers (3PLs) looking for partners that can demonstrate measurable sustainability efforts. The various ways to effectively decrease a company's environmental impact continue to grow. Armstrong & Associate's (A&A's) research has identified several sustainability efforts being implemented in today's global supply chain. A few of them are outlined below.

ENERGY-EFFICIENCY AND AUTOMATION IN THE WAREHOUSE

It takes a lot of energy to operate a warehouse, making energy efficiency a major opportunity for carbon reduction. Many 3PLs are using LED lighting, motion detectors, and smart climate-control systems to reduce energy waste. Some 3PLs are also incorporating better insulation and natural lighting to minimize electricity usage in new facilities.

Green building certifications are also being obtained to demonstrate commitment to sustainability. Automated systems are also helping reduce power consumption by

improving workflow efficiency and minimizing equipment idle time. These improvements often deliver quick returns through lower utility bills while also supporting environmental targets. Some 3PLs are investing in renewable energy, such as solar and wind power, to reduce their dependence on fossil fuels. Solar panels installed on warehouse rooftops can generate significant amounts of electricity, especially for large fulfillment centers with expansive roof space.

For example, U.S.-based Americold provides extensive refrigerated and frozen warehousing, along with value-added services, for food products. Its global warehousing network covers 55 million square feet in 231

temperature-controlled warehouses, 186 of which are in North America. The rest are in Europe, the Asia-Pacific, and South America. Recent partnerships with RSA Cold Chain and DP World will expand its reach in the Middle East and India. In 2024, Americold invested over \$18 million in 25 sustainability projects, generating 22 million kWh in annual energy savings.

26 facilities earned Energy Star certification, and their renewable energy efforts produced 24,159 MWh that year. Over 64% of Americold's global warehouse portfolio uses energy-efficient lighting. The company's goal is to generate 150,000 MWh of renewable energy annually by 2030. Germany-based Arvato expanded its North American



warehousing footprint by 48% over 2024, to 7.4 million square feet across 19 warehouses. Its U.S. locations include Las Vegas, NV; Louisville, KY; Memphis, TN; Pleasant Prairie, WI; Miami, FL; Easton, PA; Ontario; and Valencia, CA. In Canada, it has operations in Toronto and Vancouver. Globally, Arvato has 104 logistics sites covering over 35.5 million square feet across 17 countries. The company partners with major technology providers such as Microsoft, AutoStore, and Boston Dynamics to deliver customized supply chain solutions tailored to client's needs.

As a technology-driven supply chain manager with an e-commerce warehousing and fulfillment focus, Arvato serves many well-known global brands in several industries, including fashion, beauty and lifestyle, high-tech, telecommunications, automotive, and healthcare. Arvato has 100% renewable electricity across all global sites since 2023, has installed over 360,000 square meters of solar panels, and is pursuing a 50% reduction in Scope 1 & 2 emissions by 2030 vs. 2018.

OPTIMIZING TRANSPORTATION ROUTES WITH AI

Advanced route-optimization software powered by artificial intelligence is helping 3PLs reduce fuel consumption by planning more efficient delivery routes. These systems go well beyond basic GPS routing. They ingest real-time traffic, weather, road closures, delivery windows, vehicle capacity, fuel costs, and driver hours-of-service data, then use machine learning to recalculate the most efficient paths continuously.

Unlike traditional static routing, AI adjusts dynamically as conditions change mid-route. Industry-wide, companies report 15–30% fuel savings within the first quarter of implementation. In addition to environmental benefits, better routing improves delivery speed and customer satisfaction. Many 3PLs have or are integrating these tools directly into their transportation management systems (TMS) to maximize efficiency. The trend is moving from simple route optimization to full network-level orchestration. Where AI doesn't just plan individual routes

but coordinates entire freight networks to eliminate empty miles, match capacity in real time, and make continuous adjustments. The biggest ROI comes from integrating route AI directly into the TMS rather than as a bolt-on separate tool. As AI technology continues to mature, route optimization is becoming a standard practice for 3PLs seeking both operational excellence and measurable sustainability improvements. A few 3PL examples include:

C.H. Robinson's "Lean AI":

Custom AI agents reduced complex freight order processing (quoting, tracking, routing) from hours to 90 seconds. AI targets specific waste — such as missed LTL pickups — reducing unnecessary trips in carrier networks. These efficiencies are projected to add ~\$50 million in operating income by 2026.

Werner Enterprises' EDGE

TMS: Its AI-powered TMS delivered a 20% productivity improvement in brokerage loads per employee, using conversational AI for load management and notifications alongside route optimization.

Schneider's FreightPower: Its AI-powered digital marketplace matches carriers to preferred lanes in real time, keeping trucks loaded and reducing empty miles. Its proprietary Schneider ETai automates arrival/departure updates, eliminating manual check-ins so drivers focus on productive miles.

J.B. Hunt's 360° Marketplace:

Its AI-driven platform filled over 1 million potentially empty miles in a single year by matching J.B. Hunt's internal fleet with third-party capacity. The system continuously optimizes to minimize deadhead miles.



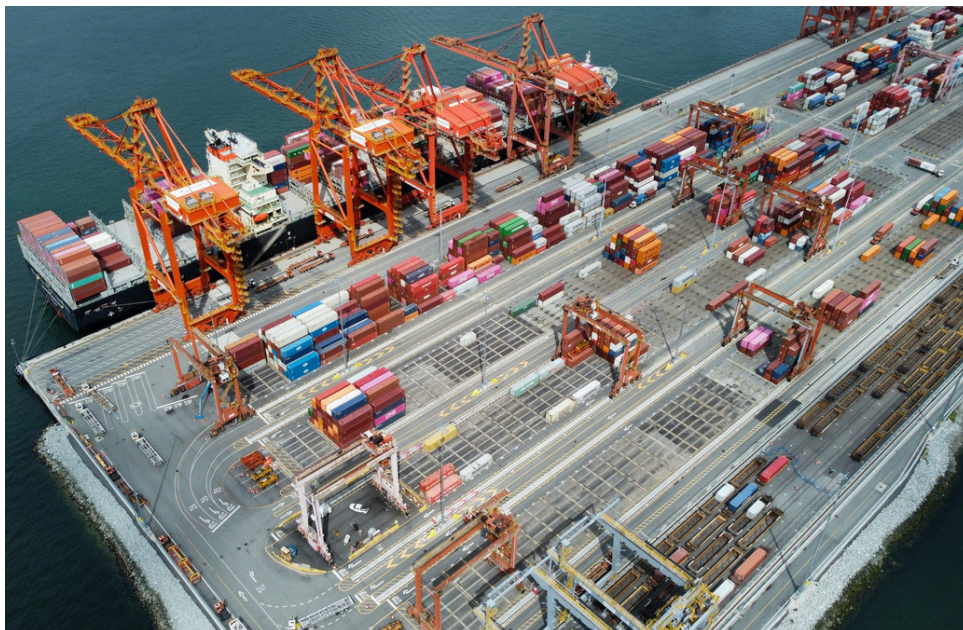
SUSTAINABILITY AND ESG COMPLIANCE

For most 3PL customers, transportation and warehousing fall under Scope 3 emissions—the hardest category to measure because the data resides with their 3PLs. As reporting requirements for Scope 3 emissions become stricter under the EU's Corporate Sustainability Reporting Directive (CSRD) and the SEC's climate disclosure regulations, real-time CO₂ dashboards for each shipment, transportation lane, and mode are becoming essential.

As regulations tighten, 3PL customers increasingly need their 3PLs to provide verified, granular emissions data. The 3PLs that do this well are becoming indispensable partners, not just service providers. Green routing algorithms assess emissions alongside cost and transit time, allowing 3PL customers to select lower-carbon options when the trade-off is acceptable. Additionally, blockchain-based emission audits provide verifiable sustainability data for

Environmental, Social, and Governance (ESG) reports, investor disclosures, and customer-facing claims. Furthermore, data-driven modal shift analysis can identify opportunities to shift from ocean to rail or from air to ocean transport without significantly impacting service quality. 3PL customers want supply chain partners that support their environmental goals and help them meet ESG targets. DHL's GoGreen Dashboard & GoGreen Plus is the industry benchmark.

Launched in 2023, the GoGreen Dashboard gives customers a centralized, interactive view of all greenhouse gas (GHG) emissions across every DHL division they use — broken down by shipment, lane, mode, and time period (monthly / quarterly/annual). Both well-to-wheel (WtW) and tank-to-wheel (TtW) CO₂e data are provided, externally verified, and compliant with the Global Logistics Emissions Council (GLEC) Framework and GHG Protocol. GoGreen Plus customers automatically receive reports on their CO₂e



savings with financial data, ready to plug directly into ESG disclosures. The shift is clear — 3PLs that can't provide verified, shipment-level emissions data are increasingly being screened out of RFPs, especially from large multinational shippers subject to CSRD or with Science Based Targets Initiative (SBTi) commitments. The most advanced providers are offering:

- Shipment-level carbon accounting (not just fleet averages)
- GLEC Framework & GHG Protocol compliance
- Third-party verification of emissions data

To learn more about current trends and sustainability initiatives being implemented in the global 3PL market, join us on May 12, when Armstrong and

Associates (A&A), in partnership with The Logistics & Supply Chain Management Society and CargoNOW, will host its annual 3PL Value Creation Asia Summit in Singapore. The Summit brings together senior executives from 3PLs, investment community leaders, and technology innovators to network and share cutting-edge ideas for achieving growth in 2026 and beyond.

This unique event offers an in-depth exploration of the operational, financial, and technological aspects of the global 3PL industry. Key panel discussions at this year's summit, revealing A&A's latest marketing sizing estimates, and 3PL market trends and insights across Asia and globally, include "Global and Regional 3PL Market Trends," Tariff Impacts and Global Trade Dynamics," and "International Transportation Management Trends."



Evan Armstrong

**Chief Executive Officer at
Armstrong & Associates, Inc.
(A&A)**

Evan has over 30 years of experience in supply chain management. As CEO of Armstrong & Associates, Inc., he oversees our market research initiatives and provides supply chain consulting services in the following areas: business planning, logistics outsourcing, mergers and acquisitions, market analysis and benchmarking, transportation management, expert witness, and supply chain systems selection.

Before joining Armstrong & Associates, Inc. in February 2000, Evan was Vice President of Pricing at Roadrunner Freight Systems, Inc. and has held sales, marketing, and operations positions with major transportation and logistics providers. Evan has an MBA in Marketing and a BBA in finance from the University of Wisconsin-Whitewater.



3PL VALUE CREATION ASIA SUMMIT 2026

SINGAPORE EXPO | MAY 12, 2026

WHERE GLOBAL THIRD-PARTY LOGISTICS LEADERS STRATEGIZE GROWTH ACROSS ASIA & BEYOND

- Thought-leadership panels on global & regional 3PL market trends, supply chain innovation, and value creation.
- Insights into trade dynamics, tariff impacts, and supply chain resilience strategies.
- Networking with top 3PL executives, investors, and technology leaders.

Register at
[www.3PLogistics.com/](http://www.3PLogistics.com/3PLAsia2026)
3PLAsia2026

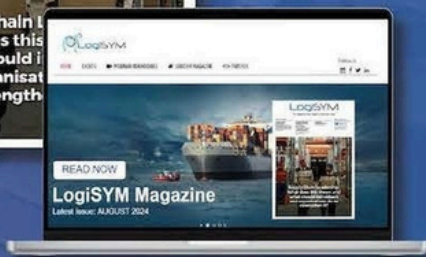


HOSTED BY:



LOGISYM BRAND PARTNERSHIP

Connect with the APAC Supply Chain Community



LOGISYM 2026 EVENTS ACROSS ASIA PACIFIC REGION

LogiSYM 2026
COLD CHAIN
12 May
Singapore

LogiSYM 2026
PLANNING & PROCUREMENT
12 May
Singapore

LogiSYM 2026
ASIA PACIFIC
13 - 14 May
Singapore

LogiSYM 2026
AWARDS
13 May
Singapore

INDUSTRY GALA NIGHT
FEATURING
LogiSYM AWARDS 2026
13 May
Singapore

LogiSYM 2026
MALAYSIA
19 - 20 August
Malaysia

LogiSYM 2026
PHILIPPINES
16 - 17 September
Manila, Philippines

LogiSYM 2026
PLATINUM THAILAND
15 October
Bangkok, Thailand

LogiSYM 2026
PLATINUM VIETNAM
12 November
Vietnam

LogiSYM 2026
INDONESIA
25 - 27 November
Indonesia

SCAN HERE
FOR MORE
INFORMATION



or contact us at:
info@logisym.org
harjeet@logisym.org

GXO

Supply chain
efficiency,
multiplied.

**From order fulfillment to reverse logistics,
GXO powers smarter logistics across Asia Pacific.**



Discover how GXO drives operational and labor efficiency with tech-enabled fulfillment, intelligent automation and scalable solutions built to keep fast-growing APAC supply chains moving forward.