LogiSYM

The Magazine for Supply Chain Executives

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The Logistics & Supply Chain Management Society
The Regional Professional Body for Logistics Practitioners

The Official Journal of The Logistics & Supply Chain Management Society

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Feature Articles

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Nomination Period
1st FEBRUARY - 2nd APRIL

LogiSYM AWARDS 2021

AWARD CATEGORIES

Corporate Awards (for Shippers)
Best Digital Transformation Initiative
Best Supply Chain Innovator
Best Sustainable Logistics Enterprise

Corporate Awards (for Service Providers & Technology Suppliers)
Best E-Commerce Technology Company
Best Supply Chain Software Company
Best Third-Party Logistics Company
Best Warehouse Automation Company

Individual Awards
Corporate Social Responsibility Champion
Promising Start-Up Champion
Supply Chain Management Champion
Thought Leadership Champion

Special Award
LogiSYM Excellence Award

SUBMISSION AND NOMINATION RULES

- Individuals may be nominated for more than one category
- Individuals may nominate themselves or for others whom they feel deserve to be recognised
- Nominations must be submitted on or before 2 April 2021
- Late or incomplete submissions will be disqualified
- The judges' decision will be final
- Any clarification or doubt relating to the nomination and submission procedure may be sent to Bryan@LogiSYM.org

WINNING NOMINATIONS

- All winners will be notified by 30 April 2021 via email to attend the award ceremony on 19 May 2021
- All winners will be announced on the 1st day of LogiSYM Singapore 2021 (19 May 2021)
- All winners will be featured in the LogiSYM Magazine (June/July 2021 issue)

SCAN HERE TO NOMINATE

FROM THE EDITOR

.....The Journey Towards Building New Business Structure Is Now a New Priority.....

Dear Readers,

As we enter the first half of Q1 2021, we begin to see several positive and encouraging signals. Whilst the COVID pandemic is by far not over yet, we are able to start looking at our organisational structures, business capabilities and making some plans for the years ahead.

The biggest challenge we will have, remains our human capital. It is crucial to understand the full impact of the 2020 lockdown, work-from-home effect and the dislocation this has created in the way it has changed our business capabilities.

One of the major positives for the supply chain industry has been to appreciate, embrace and accelerate plans towards digitalisation. But for this initiative to be successful, people have to be engaged, motivated and be at the centre of such undertakings. As we have all come to understand, digitalisation is an urgent business enabler and needs to be deployed in the shortest possible time horizon, despite all the obstacles that surround us.

Last month I highlighted the need to understand the 'reset' and what does a reset look like ? Whilst the 2021 and beyond predictions remain unchanged—the speed and pervasion of Technology, the shift in global economic power, rapid urbanisation, changes is social and demographic compositions, critical impacts on climate change, urgency for trade re-balancing, personal wealth and evolving money flows and the East West cultural shifts, we are now actually beginning to see some of these realities start to evolve.

The new political shift in the United States, is paving the roadmap to a normalisation of the world order. This is seen in the reduction in East-West trade tensions, that will stabilise and restore free trade flows, the renewed and serious focus on sustainability and climate change, which will generate new technology initiatives and help us restore some clarity in our outlook.

The challenges ahead will not be any easier, but we stand a better chance of navigating through less uncertainties and able to improve operational performances. Restructuring our organisation will be about managing business risks and vulnerabilities, as well as implanting new capabilities to deal with changing paradigms. This also implies that the diversification of our supply chains will be fundamental to a holistic restructuring approach.

Whether it means re-shoring manufacturing or expanding distributed inventory networks, it will require purposeful investments in technology, people and partner solutions to realise more resilient and robust supply chains.

There are indeed many new opportunities out there—ripe for innovative and creative thinking!

In this edition, we have several great feature articles and opinion-editorials. We hope that you will find them informative and interesting. I would also like to thank all those who have put pen-to-paper to share with us their insights and experience.

As usual I look forward to receiving your feedback at info@lscms.com and even publishing an article of yours.

Meanwhile take care and stay safe!

Joe Lombardo
International Editor
info@lscms.org

A WORD FROM THE PRESIDENT

A Better Normal

We've all heard the phrase the New Normal—and are most probably tired of hearing it. I was at a launch event last week and the organiser introduced a phrase that I really like—A Better Normal

We are by no means 'out of the woods' as far as COVID-19 is concerned and whilst I remain optimistic, new strains of the virus means we will have to live with the restrictions, controls and inconveniences for some time to come and travel for work or leisure, for example, will not recover fully for at least 3-4 years, after the pandemic has been well and truly 'beaten'.

Some are saying that the repercussions on industries like travel and tourism will last longer than that but in my opinion, people have short memories and in a couple of years when we overcome COVID-19, the pandemic will soon be forgotten—until the next pandemic of course.

COVID aside, from adversity comes opportunity and forces us to think out of the box and explore new ways of doing things. In that regard 2020 was certainly an opportunity for the team at LogiSYM to do just that. We had to pivot and change and diversify and find new ways to reach our community and we continue to do this and evolve in 2021.

Is it going to be smooth sailing? We do not think so but hopefully we all get the chance to grow, diversify and forge ahead in what looks to be another choppy year. No one will be spared.

For LogiSYM, we will be running our first physical event in May with LogiSYM Asia Pacific. I believe it will be the first hybrid supply chain symposium in Singapore when we pull it off and we are always on the lookout for speakers and participants so please drop us a note if you would like to speak or be on a panel. We will also be running our Skunkworks for start-ups so we welcome you to join that as well.

For more information on LogiSYM Asia Pacific please visit www.logisym.org/AsiaPacific2021

Here's to A Better Normal!

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OPINION EDITORIALS

Air Cargo Trends in a Pandemic World

Dominic Hyde – President Crēdo On Demand at Pelican BioThermal

Previous predications in pharmaceutical transportation trends, highlighting declining air passenger numbers and increasing air freight demand, have been pandemic propelled. Coronavirus continues causing worldwide disruption and anticipating a continued industry impact throughout 2021 and beyond.

PANDEMIC RESPONSE— "PREIGHTERS" TAKE OFF

Pre-pandemic passenger numbers were already on the downturn, however the COVID-19 crisis significantly accelerated that trend.

The crisis capacity crunch came as passenger flights plummeted and the ensuing scramble to transport pandemic payloads saw the deployment of hundreds of passenger planes as freighters, known as "Preighters" take off.

Pioneering Portuguese charter operator Hi Fly led this trend and was the first to convert an A380 for freight, taking out the majority of seats to provide more cargo capacity.

Despite the sector seeing the grounding of hundreds of passenger aircraft, earlier than had been initially forecast, which led to a reduction in the availability of belly cargo space, we've seen more aircraft conversions to freighters.

This "Preighters" prevalence looks set to continue throughout 2021 and beyond. Although the air cargo industry faces continuing challenges, IATA predicts an anticipated 25% rise in freight tonne-kilometres this year.

Boeing projects growth in the global freighter fleet with the number of cargo aircraft in service forecast to increase more than 60% over the next two decades, resulting in 3,260 operational aircraft by 2039[1].

However, the drastic downturn

[1] http://www.boeing.com/commercial/market/cargo-forecast/

in travel means the loss of capacity in passenger aircraft, so there will be a slower response to replacing some of the capacity lost from the passenger side of the industry, despite the conversions and cargo demand.

Some fleet 747s with comparatively low hours on their airframes will likely become converted freighters just to try to backfill some of that loss in capacity from the passenger numbers.

LARGE WIDEBODY AIRCRAFT— GROUNDED OR RETIRED

Before COVID-19, it was predicted airlines would start cutting flights from schedules, mothball larger aircraft, decline cancel buy options and look to utilise smaller, more efficient aircraft in the future, driven by environmental and economic reasons. These decisions have been massively accelerated.

The A380, which Airbus had previously announced it would stop deliveries of in 2021, has also seen retirements by numerous airlines, except Emirates.

Increasingly airlines are globally grounding their A380s in favour of more modern, smaller jets, which can fly more efficiently than their four-engine aviation counterparts.

We will continue to see is a lot more interest in leaner aircraft, like the A220, the Canadian Bombardier aircraft Airbus produced in North America.

SEA CHANGE IN MODES OF TRANSPORT

There will be ongoing developments in the sea freight sector, which has an estimated 17 million TEUs (Twenty-foot Equivalent Unit) serviceable globally, of which six million containers are routinely turning and carrying freight.

Put in perspective, at its lowest level of trading during the onset of coronavirus, there were 135,000 TEUs a month travelling from China to the US.

However, during peak months, when the US retail sector stocks up for Thanksgiving and Christmas, this increases to 900,000 TEUs a month. This equates to 8% of the global free flow of sea containers just crossing the Pacific from China to the United States.

Any delays will see a huge build-up of sea containers, leading to availability issues and rate rises, as seen during the pandemic when China stopped producing. What we saw with the initial emergence of COVID-19, China stopped producing, so wasn't pushing out those sea containers, giving rise toglobal availability problems because most of the sea containers were piling up in China.

When China returned to approximately 98% of its production output in April other countries were then in lockdown, such as the US holding containers for two weeks in ports to quarantine them, compounded by shorthanded work forces operating in the docks.

As sea containers started to pile up in their markets and exports to China impacted, shipping lines cut sailings from schedules. This saw sea freight prices spike by up to 50%.

Uncertainty in sea freight and air freight availability saw pharma companies initially ship everything they could, by any mode of transport available, to get it out to the markets.

Following months of disruption passenger airlines eventually started flying passenger aircraft with cargo in the lower decks and loose load cargo on the upper decks.

We are now in the situation where that back haul from the US and Europe, following Christmas shopments, China now has availability issues with reduced sailings. So there will not be any kind of normal flows until March 2021, at the very earliest. But as the UK is currently back in another national lockdown, with greatly reduced non-essential retail this will further affect the back haul.

While I was hoping things might be back to some kind of normality in March, I am now inclined to add another quarter to that. I now think there will be exacerbated sea freight and sea container availability issues throughout the first half of 2021.

Given the sea freight situation we will continue to see the utilisation of air freight to transport pandemic payloads. When it comes to the economics, no passengers on the main deck is a much more expensive operational option. However, pharma customers are prepared to pay those premiums to move their product.

The volumetric efficiency on aircraft is now more critical. It is such a scarce resource we need to ensure the best use is made of it. With air freight capacity a dwindling resource, it is even more important to have very efficient

packing density of temperature controlled product..

VACCINES VS. VIRUS—RAPID RESPONSE

As the development of successful COVID-19 vaccines continues at a rapid rate, the world's first approved vaccines are already being administered as part of ongoing mass vaccination programmes worldwide.

Temperature controlled packaging manufacturers continue to play a pivotal part in the global deployment of these approved vital vaccines, including those developed by Pfizer/BioNTech, Oxford University/AstraZeneca and Moderna.

As COVID-19 vaccines fall into different families of technology, some have frozen and deep frozen temperature requirements, leading to a scramble to qualify existing solutions for shipping at those specific lower temperatures.

In a rapid response to the logistical cold chain challenges involved in the deployment of these potentially lifesaving vaccines, we have adapted our shippers to meet those temperature requirements, as have other providers in the market.

There has been an impetus for innovation to support these temperatures in volume. Suppliers stepped up to meet the vaccine temperature requirements by adapting existing shipping solutions and the capacity is there, so I don't anticipate it will be an issue going forward.

The focus is reverted back to the capacities in the transport modes and given the nature of these drugs people are paying whatever it costs to ship them, with rates rising sharply from USD2.5 a kilo to USD23; however that's starting to calm down.

Beyond all of the current vaccines being approved there will be the need to provide boosters. It is going to create a recurring step up in the volume of vaccines being shipped, alongside the flu vaccines being transported and other pharmaceutical payloads every year.

There will not be a continuous crisis; it will be a continuing trend of smaller aircraft, with reduced air freight capacities, moving pharma products at temperatures that sea freight cannot do. It really can only fly.

However, there's not going to be a modal shift from air to sea because sea cannot meet the temperature requirements necessary for these shipments. You get a displacement, whereby COVID-19 shipments, whether vaccines, test kits and reagents or some of the therapies which help with recuperation, like Remdesivir, are flying at almost any cost on a dwindling resource.

The pharmaceuticals, which have more normal temperature shipping requirements, like 2-8°C degrees or 15-25°C degrees, get displaced and in that situation, when the air freight rates get so high, sea freight would normally be seen as a shipping solution.

However with all of the sea freight challenges, coupled with the fact that their transportation rates have also doubled, there has been some displacement but not as much as pharma companies would have liked, which is what has kept pushing the prices up in the region of the USD23 a kilo figure for air freight we had seen previously in the market.

Sea freight will improve in the first six months of 2021 so some of that displacement can take place more efficiently. But aircraft will still be full of the COVID-19 related products.

2021 will see the industry learning to operate in the new norm with everyone getting used to that change. Next year we might start to see some improvements and efficiencies but I think this year is about adjusting our planning, our capacities and our operations around this spike in demand and the gradually improving capacity picture. Almost like wearing in a new pair of shoes.

ABOUT THE AUTHOR
Dominic Hyde
President
Crēdo On Demand at
Pelican BioThermal

Dominic Hyde is well experienced in the global cold chain logistics field, in which he has worked for 20 years, developing worldwide rental programs for transport of temperature controlled pharmaceuticals. Prior to this position, he was Managing Director at va-Q-tec Ltd. where he was responsible for building a global rental network and container fleet from scratch. Preceding that role, he was Managing Director at MBI aero, which consulted on transportation solutions for high value/life critical products requiring a controlled environment throughout their transportation cycle. Previously, Mr. Hyde was Chief Operating Officer at Envirotainer AB, where he also held the positions of Director of Technical Sales and Technical Director. He has an engineering background and originally studied Software Engineering and then reading Systems Engineering before starting his career in defence avionics and cockpit systems.

WEBINARS SYNOPSIS

The Logistics Challenge of the Century

February 2, 2021
Guest Panelists:

- **Prof Richard Wilding OBE, Cranfield University**
- **Dr Christopher Holms, Managing Director, IDC Insights APAC**
- **Wolfgang Lehmacher, Supply Chain and Technology Strategist**
- **Dr Raymon Krishnan, President, The Logistics & Supply Chain Management Society**
- **Michael Culme-Seymour, Consultant, World Economic Forum**

Talking to Joe Lombardo, Editor, LogiSYM magazine and Stephanie Krishnan, Research Director, IDC

Whilst there is a lot of positive news on the COVID vaccine, there have also been several notable disappointments on how the distribution has been progressing—but there are always two sides of the story!

With an esteemed panel of speakers, we tried to unbundle the complex issues around this topic and to better understand if the perceived shortfalls are failures or were unrealistic expectations!

THE CHALLENGES: "THE SCALE AND COMPLEXITY OF SUCH A PANDEMIC COULD NOT HAVE BEEN IMAGINED BY MANY!"

The panel discussion focused around many issues, starting by highlighting the fragmentation of the health care systems at Country level and the disconnect in communications amongst many stakeholders, which were visible logistics obstacles. These alone can be attributed to weak planning and visibility for distribution.

A comprehensively designed vaccine distribution and supply chain model, would have highlighted the pipeline bottlenecks, the focus areas for investments and training in effective distribution and vaccination management required for the task. As these were lacking, they were also contributors to distribution failures.

A deep dive into an end-to-end supply chain design, would have also identified the need for materials (glass vial bottles), cotton buds, clinical alcohol wipes, syringes and other accessories to enable vaccinations to be executed. This would have had an effective distribution impact, had there been more concerted planning.

A risks and vulnerabilities review, would highlight a lack of investment in infrastructure for such a model. The risk profile of the pandemic illustrated a fragility in the logistics industry, where new realities have emerged.

Whilst there are many lessons to be learned, the speed at which the vaccine was development, approved, scaled-up and brought to market, was no mean task – for this we all recognise the challenges upstream. It is here where the expectations were maybe overly hyped. Had it not been for pharma companies to build some advance inventory to buffer the early roll-out, before emergency approvals were granted, the time to market would have been even longer than we have seen so far.

STREAM THE WEBINAR

Whilst we all anticipate a more linear ramp-up to full scale, with more suppliers increasing the vaccine availability, there could still be some bottlenecks in volume output vs the committed quantities. This may be due to available manufacturing capacity and raw materials supplies in general shortages. This expectation shortfall, will continue the increased pressure on pharma suppliers.

Whilst the roll-out has started, and some of the global anxiety has subsided, the panelists' views are that the identified improvements must be made without delays. The challenge for COVID vaccine distribution will be with us for the at least the next 24 months. Until the world population has been inoculated and we get ready for the second next round of vaccines—"the booster", there will be no relenting, even if somewhat more stabilised.

CLOSING MESSAGE: "WITH 20-20 HINDSIGHT VISION, WHAT ACTIONS WOULD HAVE BEEN MORE APPROPRIATE?"

The panel summarised their thoughts by highlighting that some simple actions and considerations would have resulted in a much more effective distribution outcome:

- Working closely as a global community—avoiding the "silo" effects.
- Using technology for scenario planning—fast and effective.
- Should have applied a common sense approach—logical justification.
- Early simulation distribution modelling, would have overcome challenges—readiness for vaccine.
- Throw away the rule book and start with the realities on the ground.
- Bureaucracy got in the way of innovative solution for this extraordinary challenge.
- Missing that vital international and global collaboration.

ACKNOWLEDGEMENT

On behalf of all at LogiSYM, a sincere thanks to all panelists for their contributions, with a great appreciation to their valuable insights to this complex and challenging topic.

WEBINAR SYNOPSIS

The Short & Medium Term Impact to Supply Chains

February 2, 2021
Guest Panelists:

- **Dr Christopher Holmes, Managing Director, IDC Insights APAC**
- **Stephanie Krishnan Research Director, IDC**
- **Wolfgang Lehmacher, Supply Chain and Technology Strategist**
- **Dr Raymon Krishnan, President, The Logistics & Supply Chain Management Society**
- **Prof Richard Wilding OBE, Cranfield University (part attendance)**
- **Michael Culme-Seymour, Consultant World Economic Forum (part attendance)**

Talking to Joe Lombardo, Editor, LogiSYM magazine

With all the attention and effort on the COVID vaccine logistics and distribution, some areas of business supply chains seem to have been put on hold. This has also aggravated the available freight capacities and where we have seen rates rise to unprecedented levels. We take a deep-dive into the immediate practical tactics in facing a permanently-transformed logistics landscape.

How will supply chains be affected in 2021? What should we do and what should we be aware of as logisticians in the next months? Can we imagine the logistics landscape when capacity and rates will be restored to meet industry demand? And can we anticipate how to prepare for an upturn in shipments post-COVID? These are high profile topics discussed by a panel of subject matter experts.

THE CHALLENGES: "EXPOSURE TO RISING COST AND RISKS OF DISRUPTIONS, WILL BE KEY TO ACHIEVING RESILIENT NETWORKS"

The challenges of freight capacity, rates/pricing, shippers service contracts, carrier commitments, re-shoring and the role of technology are areas and key questions we are all faced with. Deciding on the best strategies for our business is crucial—but navigating the numerous obstacles requires smarter approaches.

Panelists agree that there are some key areas where we will see significant shifts—shippers will need to diversify their manufacturing base, potential on-shoring to restore resilience, maybe re-shoring to achieve more distributed value chains. There is already a rapidly change in managing and deploying human capital (people)—more focus on supply chain professional skills and competencies.

Investments in agile IT systems will be fundamental to survival– more cloud based and SaaS solutions. IDC, describe it as a "digital win"—moving forward—"it's a have to have it!"

Finding your company model to manage volatility, will be key to achieving real gains in growth and stability. The balance of power in managing supply chain parameters will be crucial.

Shippers have not invested enough in their supply chain capabilities, having relied on their logistics service providers. This shift needs to be recognised by shippers if they are to gain any traction in building resilience and control for their costs, diversification, capabilities and agility whilst mitigating risks.

CLOSING MESSAGE: "THE TOP 10 GAME CHANGERS FOR 2021 WILL BE DETERMINED BY SPEED AND AGILITY OF SOLUTIONS"

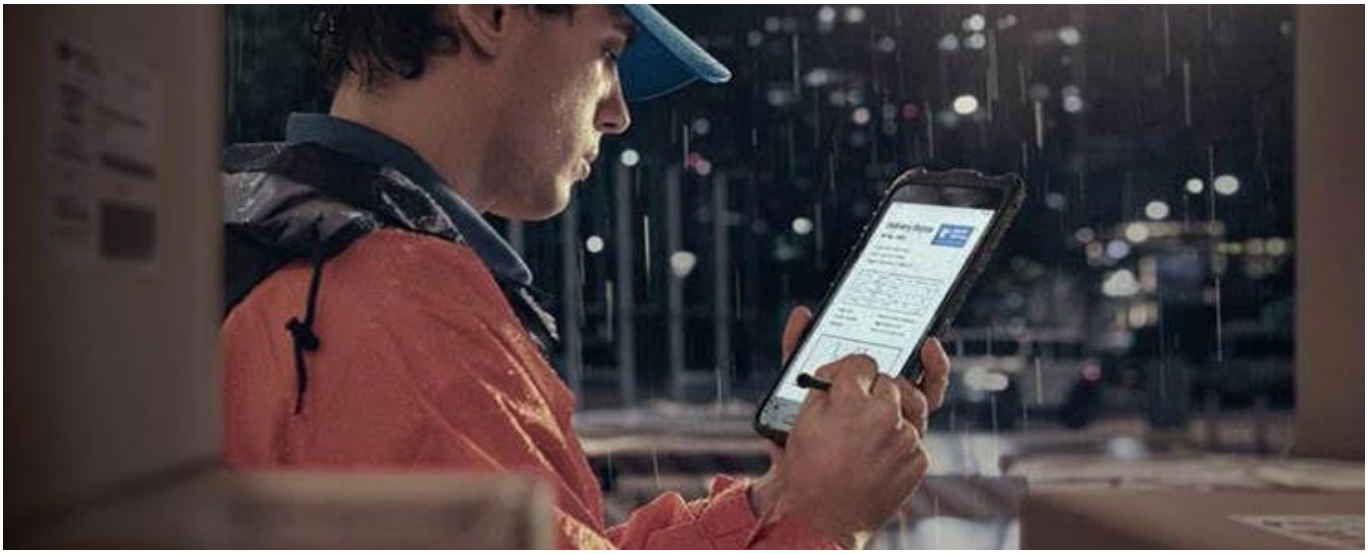
Summarising the panelists' views of the critical game changers and their impact on the short and medium term supply chains across regional and global networks:

- Refocus on sustainability and climate change—a major driver for risk mitigation and costs.
- Restoring East-West political relationships—reduce tensions and benefit collaboration and trade.
- Digitalisation and use of data to re-design supply chains.
- Cloud based agile systems—investment in IT agile systems.
- Market consolidation—M&A of distressed, but viable companies.
- Balance of Economic Power shift to Asia—Asia being more dynamic and will see faster growth.
- Solidarity to Close the Gap—Rich vs Poor economies.
- Remote Organisation capabilities – new and more effective ways of working.
- Control by Management—increased focus in areas not previously seen.
- More focus on Supply Chain—increased investments to upgrade capabilities.

ACKNOWLEDGEMENT

On behalf of all at LogiSYM, a sincere thanks to all panelists for their contributions, with a great appreciation to their valuable insights into the Impact of Supply Chains in short and medium term.

Samsung Announces the Expansion of its Business Rugged Device Range



Samsung Electronics Singapore announced that the Galaxy Tab Active3 is now available and that the Galaxy XCover Pro will be available in March.

Businesses are looking for multi-functional devices that are easy to use. Samsung's research found 68% of those surveyed agree that devices supporting point-of-sale, push to talk and mobile scanning functions need to be performing more than one dedicated role. In addition, enterprise customers with frontline employees in construction, healthcare and last-mile delivery sectors require durable, portable and easy-to-use rugged devices to complete their tasks confidently.

"When designing the Galaxy Tab Active3 and Galaxy XCover Pro, we have incorporated new features based on feedback from our customers on functions that would benefit their everyday operations," said Sarah Chua, Vice President of IT and Mobile, Samsung Electronics Singapore. "The Galaxy Tab Active3 is a multi-functional tablet that not only supports the latest applications for field work, but also no battery mode for those who require devices at a fixed kiosk or mounted on vehicles. Meanwhile, the Galaxy XCover Pro can seamlessly transform into a mobile device scanner or a walkie-talkie—perfect for field workers in logistics and supply chain sectors."

Samsung's commitment in developing ruggedised devices has also been recognised in the industry, where the company was named as a Leader in the IDC MarketScape for Worldwide Rugged Mobile Devices.

Singapore-based private transport operator, Woodlands Transport, saw productivity improvements with the implementation of Samsung's Business Rugged tablets in their buses and for backend administrative processes.

"Partnering with Samsung has helped our organisation to streamline and digitalise operations. What used to be traditional pen and paper processes is now done on a Samsung rugged tablet, which provides us real-time information of our drivers and passengers. In addition, the multifunctional tablets allow us to seamlessly coordinate and manage our fleet vehicles on the roads daily, all from the same device. With improved operational efficiencies, our on-ground employees are able to focus on the task at hand—operating the vehicles —thereby delivering an optimal travel experience and improving customer satisfaction," said Albert Lim, Managing Director, Woodlands Transport.

A new solution available for the Samsung's Ruggedise line-up is Knox Capture, which will be available from March. Powered by Scandit's industry-leading capture engine, Knox Capture readily turns the device's camera into a barcode scanner, with no additional accessories and add-ons required.

This is especially helpful for enterprises that rely on barcode technology for tracking, especially in the last- mile delivery and healthcare sector.

Alibaba's Logistics Arm Cainiao Invests HKD 5 Million to Keep Logistics Operations Flowing During Lunar New Year

Cainiao Smart Logistics Network, the logistics arm of Alibaba Group Holding Limited, today announced a HKD 5 million (USD645,000) investment to keep logistics operations flowing during the upcoming Lunar New Year festivities, which typically spans 2 weeks. The launch of this value-added service means that businesses in Mainland China and Hong Kong will be able to continue their sales and deliveries even during the traditional Lunar New Year shutdown, and Hong Kong consumers will be able to enjoy their shopping without worrying about shipping delays. After the Hong Kong pilot, the plan is to expand the service to other regions in the near future.

This service would encompass a 1500-strong workforce across the full chain of logistics operations, spanning Cainiao's warehouses, 170 island-wide collection points, partner and courier network as well as customer service.

With the latest Cainiao initiative, consumers in Hong Kong will be unaffected by the logistics service closures and be able to receive their parcels within three working days. Consumers will also receive additional protection with compensation for late deliveries that take more than three working days.

"With the pandemic, logistics has increasingly served as an essential service that connects people to goods, services and most importantly, their loved ones. During festivities such as this Lunar New Year, we hope that by keeping the logistics service running, we are creating opportunities for businesses to increase sales revenue and for consumers to connect with their loved ones by sending gifts across the border or to enjoy local produce without having to commute home. As Taobao and Tmall's official logistics provider, we are always seeking new and better ways to deliver more value-added logistics services to benefit businesses and consumers," says Ray Cheuk, Head of Operations (Hong Kong), Cainiao Global Supply Chain.

Traditionally, logistics services will be shut down for as long as three weeks, with services such as acceptance of orders and parcel deliveries closing as early as two weeks prior to the Lunar New Year, and only resuming on the seventh day of the lunar calendar. This meant that businesses will have to manage inventory, production timeline and shipping deadlines in order to ensure that they deliver to their customers successfully during the seasonal rush. The Lunar New Year shutdowns are usually followed by mass demand from businesses that need to make up for the two to three weeks' worth of delayed shipment.

This announcement comes after the recent launch of its reverse logistics channel between Hong Kong and Mainland China, as well as delivery guarantees to provide assurance and offer protection against late deliveries, damaged and lost goods.

Zebra Technologies Expands APAC HQ with Advanced Facilities

Zebra Technologies opened its expended Asia Pacific (APAC) headquarters in Singapore in early February. The nearly 21,000 square foot space at Frasers Tower incorporates advanced facilities including Zebra's Research and Development (R&D) Center focusing on printer innovations, a new Global Enablement Center (GEC), and the largest Zebra Experience Center (ZEC) in APAC.

The official launch of Zebra's expanded APAC headquarters comes as Singapore embarks on Phase 3 of its economy reopening. Zebra's APAC headquarters is home to Zebra's regional functions such as sales and operations, marketing, finance, legal and specialist roles. Since its establishment in 2008, Zebra's staff, including mostly Singapore local talent, has increased by about four-folds.

"Zebra spends about 10% of our global revenue on R&D to empower the front line of enterprises with the latest technological solutions. This includes the development of our new R&D center in Singapore," said Ryan Goh, Vice President and General Manager, Zebra Technologies Asia Pacific.

"We have also introduced other advanced facilities to offer a world-class resource for our customers, partners, and key stakeholders to educate them on Zebra's cutting-edge technology. By sharing our technology and expertise, Zebra will help Singapore enterprises gain a competitive advantage by enhancing their efficiency, accuracy and productivity."

The advanced facilities located at the Zebra APAC headquarters include:

- Zebra's Print R&D center in Singapore, a center that has developed some of Zebra's global printer innovation in Singapore, including the color touch-screen panels for its ZT series of printers.
- APAC's largest Zebra Experience Center, a resource that will help businesses model their digital transformation interactively.
- Zebra's latest Global Enablement Center, built to advance the adoption of Zebra solutions and services by customers and partners through Sales Enablement and Learning.

Zebra work with over 10,000 partners in 45 countries for to enterprises of varying sizes, including small- and medium-sized businesses.

Automakers idle more plants as chip shortage worsens; Samsung warns of spread to cellphone

BY Paul A. Eisenstein

A worsening shortage in semiconductor chips is forcing automakers to further curb vehicle production, potentially short-circuiting the industry's attempt to recover from the pandemic. The chip scarcity is even starting to impact other industries, with South Korea's Samsung Electronics this week warning it is "closely watching the implications," warning it could hit production of its smart phones.

Ford said Thursday it would temporarily idle two of three shifts at its Chicago Assembly Plant next week, a move that will impact a sizable share of the factory's 5,300 hourly employees. Ford also extended a plant closure in Louisville, Kentucky, for at least another week.

Today's vehicles are essentially computers on wheels, using hundreds of microprocessors and other chips to regulate their powertrains, control infotainment systems and operate the latest digital safety systems.

As auto production and demand for chips slumped sharply during pandemic lockdowns, the need for microchips for the consumer electronics industry surged as millions of people were forced to work and shop from home, buying new smartphones, computers, web cameras and other digital devices.

Now, the auto industry is racing to recover, accelerating production to refill depleted vehicle inventories. But a report released this month by Bloomberg estimated that Detroit automakers alone could lose as much as USD61 billion in revenues this year if the chip shortage continues.

The impact of the crisis varies by manufacturer. General Motors said it has so far faced no closures or slowdowns—but Toyota, Volkswagen, Honda, Mercedes-Benz, Audi, Subaru and Nissan have all made cutbacks in the U.S. or other parts of the world. Stellantis, the new industry giant formed by the merger of Fiat Chrysler Automobiles and France's PSA Group, currently has two North American plants closed.

Ford has been one of the hardest hit. The second-largest U.S. automaker will idle two of three shifts at the Chicago plant producing the popular—and highly profitable—Explorer SUV. Spokesperson Kelli Felker said the exact number of workers being affected has not been determined, but the factory employs 5,300 hourly workers and hundreds more on salary.

The closure is scheduled to last for a week but, in a letter sent to workers and obtained by the Detroit Free Press, local union leader Coby Millender said that he has been advised there is "a strong potential for additional weeks" of closure if Ford can't come up with more chips quickly.

Ford has already extended the complete shutdown of the Louisville plant producing another popular SUV, the Escape.

"It is a really fluid situation and I couldn't predict what's ahead for us," Felker said, quoting a separate company statement that said Ford is "working closely with suppliers" to resolve shortages.

Singapore's SMEs Moving Past COVID-19

2020 has proven to be a 'make or break' year for SMEs across Singapore. With businesses ordered to close as the Circuit Breaker was implemented, the pressure was on for SMEs to adapt and change according to the economic climate.

What happens when a rock is being forced upon with pressures from all sides? It turns into a diamond. This metaphor can perfectly represent the twenty-seven (27) fast moving companies who were announced as winners of the SME100 Awards 2020 Singapore.

These 27 "diamonds" were among the 225 Singaporean companies that were nominated for what is the highest accolade for SMEs across Southeast Asia. The SME100 is organised by SME Magazine, with the support of AMCHAM, ORBA and LSCMA. Crowe Singapore served as official auditors,

Among recipients were Deelish Brands Pte Ltd, Inter Island Manpower Pte Ltd, T One Capital Pte Ltd and Valency International Pte Ltd; all receiving the awards for the first time.

Despite the challenging economy, SME100 continued to adopt one of the most stringent evaluation criteria for all nominees. The 5-step process included both qualitative and quantitative analysis, as well as a 100% interview requirement.

"2020 is an extraordinary year for SMEs. Most SMEs, however, are already looking past Covid-19. Many have now repositioned their companies for recovery post-pandemic", said William Ng, group publisher and editor-in-chief of Business Media International, the owners of SME Magazine.

Nominations for 2021 are now open. Go to https://sme100.asia/ or contact the SME 100 Awards at marketing@businessmedia.asia to know more.

WINNERS LIST—SME100 AWARDS 2020 SINGAPORE

- Aryan Solutions Pte Ltd, ICT & Telecommunications
- AVEVAI Pte Ltd, Automotive
- Avida Pte Ltd, Trading & Wholesaling
- Chew's Agriculture Pte Ltd, Agriculture, Livestock, Plantation & Commodities
- Deelish Brands Pte Ltd , Food & Beverages
- Declarators Pte Ltd, Logistics
- DNA Engineering Pte Ltd, Electrical & Electronics
- Duyen Cleaning Services Pte Ltd, Professional & Business Services
- Earth Interior Design Pte Ltd , Professional & Business Services

- Enercon Asia Pte Ltd, Professional & Business Services
- FirstCom Solutions Pte Ltd, ICT & Telecommunications
- IIDEAS Pte Ltd, Professional & Business Services
- Inex Innovate Pte Ltd, Healthcare & Pharmaceuticals
- Inter Island Manpower Pte Ltd, Professional & Business Services
- Intercorp Solutions Pte Ltd, ICT & Telecommunications
- Kelvin Sng Productions Pte Ltd, Professional & Business Services
- LiveWerkz Pte Ltd, Professional & Business Services
- Oregano Trading Pte Ltd, Trading & Wholesaling
- RAS Security Pte Ltd, Professional & Business Services
- SJS Hospitality Pte Ltd, Food & Beverages
- T One Capital Pte Ltd, Construction, Property Development & Building Materials
- TAG Industrial Pte Ltd, Industrial & Commercial Goods
- The Arcade People Pte Ltd, Professional & Business Services
- The Immigration People Pte Ltd, Professional & Business Services
- Valency International Pte Ltd, Agriculture, Livestock , Plantation & Commodities
- Westcom Solutions Pte Ltd, Oil & Gas, Mining & Energy
- WSE Pte Ltd, Oil & Gas, Mining & Energy

Blow to Amazon as Alabama warehouse workers given go-ahead for union vote

BY Lauren Aratani

Amazon warehouse workers in Alabama will be allowed to conduct a union election by mail, the US's top labor relations agency said on 5 February, in a major blow to the online retail giant's intense anti-union efforts.

The National Labor Relations Board (NLRB) ruled that union ballots for workers at Amazon's Bessemer fulfillment center, located outside of Birmingham, can be mailed out on 8 February after Amazon raised objections to the vote taking place by mail.

Voting by mail has become commonplace during the pandemic. But in an appeal to the NLRB, attorneys for Amazon argued that a mail-in election would take too long and involve too many resources. Amazon proposed in January that the election take place in person over the course of four days in the fulfillment center's parking lot, even as Alabama sees about 2,000 new cases of coronavirus every day.

On 5 February, the NLRB said in a brief ruling that the company "raises no substantial issues warranting review" and denied Amazon's attempt to delay the election.

About 5,800 employees are expected to receive union ballots. The Retail, Wholesale and Department Store Union (RWDSU) is leading unionization efforts and will represent the workers if they vote to unionise.

Amazon's business has been thriving during the pandemic, but the company has been criticised for not implementing safety measures in its warehouse as the virus raged.

Efforts to unionise warehouse workers have popped up at fulfillment centers across the country, but the push to unionise in Alabama has so far been the most successful. If workers vote to unionise, it would be the first union of Amazon warehouse workers.

Leading up to the union vote, Amazon launched a campaign attempting to strongly discourage workers from voting to unionise. The company set up an anti-union website and sent texts to workers claiming that unionizing means "giving up the right to speak for yourself" and that the union will be taking "your money for nothing".

"Once again, Amazon workers have won another fight in their effort to win a union voice," said Stuart Appelbaum, RWDSU president, in a statement following the NLRB's ruling.

"Today's decision proves that it's long past time that Amazon start respecting its own employees; and allow them to cast their votes without intimidation and interference."

GREEN CORRIDOR

Counting Carbons

DO YOU KNOW HOW CARBON IS COUNTED?

Six years ago when I took on the role as Head of Go Green at DHL eCommerce, the first thing I needed to know was where the company stood in its carbon footprint trail. The first and foremost question was:

"How much carbon was being produced and emitted into the atmosphere by DHL?"

This began for me a quick education in carbon accounting and I want to share what I've learned with you to answer the question of how carbon counting is done.

This is not a simple question to answer. Whilst people spend years learning the art of counting money, and businesses grapple on how to account for their revenues and expenses, counting carbon is a relatively new concept. The processes and systems for dealing with carbon numbers are relatively new.

IDENTIFYING SOURCES OF CARBON EMISSIONS

The current practice on how to measure greenhouse gases, is to organise things into three buckets. These buckets are referred to as "Scopes" in the trade.

These are classified into sources of emissions as Scope 1, Scope 2 and Scope 3.

Scope 1 emissions are those directly produced by you, with questions like:

- Does your equipment burn fossil fuels?
- Does your business activity directly release greenhouse gases into the atmosphere?

If you answer "yes" to these questions, then you have to tally these Scope 1 emissions in your carbon calculation.

Scope 2 emissions are generated by other companies that supply your power.

- These are considered "indirect" greenhouse gas sources.
- Does your utility company use oil to generate the electricity used to run your office?

If so, the greenhouse gases released from burning that oil would be your Scope 2 emissions.

Scope 3 emissions are the amount of carbon emitted by vendors and suppliers in your value chain, another indirect source.

- Do you transport your products to your customers on the other side of the world in a container ship?
- Well, how much carbon did the ship emit in the course of the move?
- If you purchased trucks for your shipping fleet, how much

carbon was emitted in making those vehicles?

- Business travel is also in this scope. The carbon footprint for attending a meeting on the other side of the globe would show up here.

All of these emissions would tally int your Scope 3 emissions

CALCULATING AND REPORTING CARBON EMISSIONS

At this point, you are basically just adding up the carbon that was emitted in scopes 1, 2 and 3. Generally this is displayed in tons of carbon. Many companies will measure more than just carbon dioxide. They will list the emissions in tons as well and include carbon dioxide, methane, nitrous oxide, and other flourinated gasses. These would be listed as "Green House Gasses" or "GHG" for short.

For many industries like farming or mining the GHG is far more relevant than simply counting carbon dioxide.

Reporting your emissions is nearly always done based on whether or not the company is making progress in cutting emissions or not. In order to do that they will always report emissions as a percentage improvement verses a baseline. This is where things get a bit tricky.

If you are a growing company getting more and more business every year, then it would be unfair to simply compare one year of emissions verses another year, because even if you made improvements with cutting carbon from your processes you could still emit more based on that fact that you have doubled your business. In the transport industry one would then simply calculate the tons of carbon emitted per kilogram shipped. This is one possibility, but there are others. Companies essentially need to report what is fair and reflective of their processes.

UNDERSTANDING THE IMPACT

Breaking down the sources of carbon and counting the emissions using these three scopes helps organizations become more aware of the impact of their activities in carbon output. This awareness is crucial to help them focus on areas for corrective actions in a structured and controlled manner and without being overwhelmed.

This is the standard method most companies use today.

CHALLENGES

That said, only some companies are able to calculate their Scope 3 emissions. This is due to a lack of information from logistics service providers, carriers and even vendors.

If companies were bound by a more regulated procedure, that required them to count their emissions, with a degree of accuracy and then share them with their stakeholders, it would be much easier to determine scope 3 emission.

Instead, what often happens today, is for companies to try and calculate their Scope 3 emissions based on what information they have on their vendors' operations. We did that a lot at DHL.

Despite the hurdle, don't be hobbled into inaction. You can start by calculating your Scope 1 and Scope 2 emissions, which will already give you a better understanding your carbon footprint and how to adjust and improve. You can't manage what you can't measure. So start measuring!

Timothy Foote
Founder
Susymbio

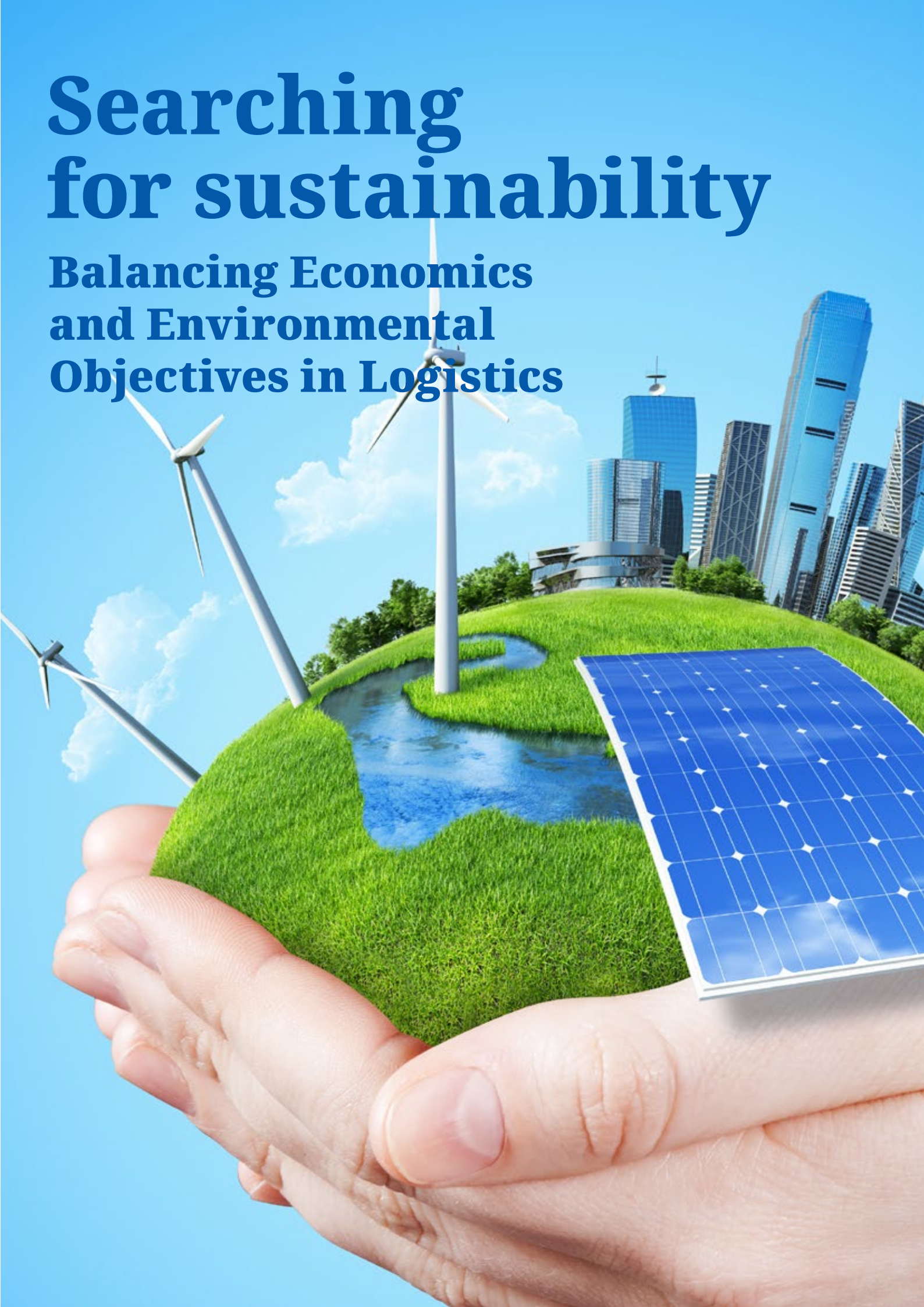
Tim Foote runs Susymbio, a boutique consulting firm advising clients on e-commerce logistics solutions and provides sustainability program management services. Tim worked in management positions at multiple MNCs for more than 25 years, gaining a wide knowledge and expertise in logistics operations, Tim has crafted delivery solutions for many e-commerce clients and managed the supply chains for several chemical and freight forwarding companies.

At DHL eCommerce's first Asia Pacific Head of Go Green, he put in place various programs, including carbon footprint management, sustainability training, illegal wildlife smuggling monitoring training, and employee engagement.

Tim volunteers his free-time with the Singapore Wildcat Action Group, a not-for-profit organization that raises awareness and funds for wildlife conservation.

Searching for sustainability

Balancing Economics and Environmental Objectives in Logistics



BY Prof. Alan C. McKinnon, Professor of Logistics, Kühne Logistics University

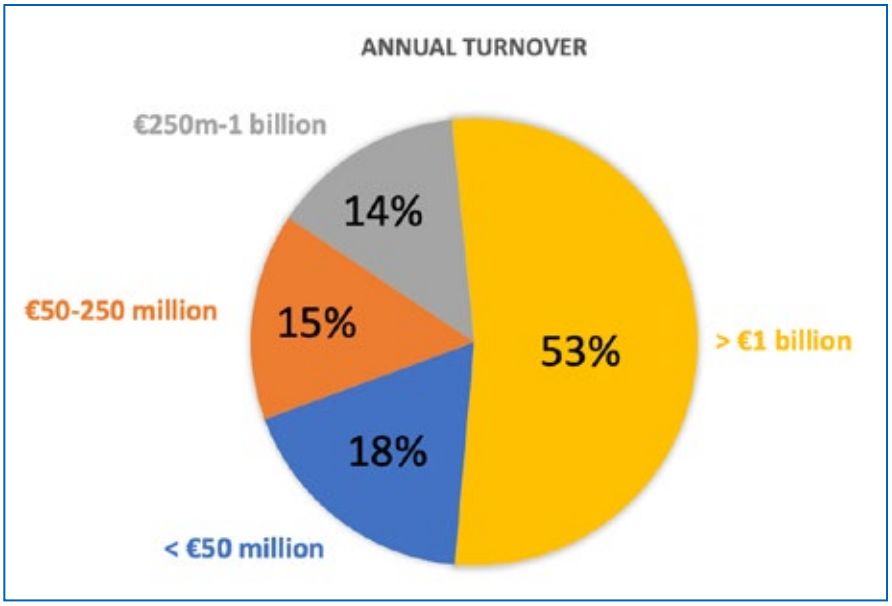
The vital role of logistics and its decarbonisation in the fight against climate change is undisputed. Yet there are still concerns that environmental improvements might impair the economic efficiency of logistics.

A new study by the Center for Sustainable Logistics and Supply Chains (CSLS) at Kühne Logistics University, in cooperation with the European Freight & Logistics Leaders' Forum, clearly shows that environmental and economic objectives are not in conflict and often well aligned. The responses that we received from a large group of senior executives confirmed that the majority of sustainability projects by leading companies also yield economic benefits.

This article is the start of a short series that will be explaining why the time for logistics to become sustainable is right now. Some logistics managers still perceive climate change as a longer term problem that can be left to future generations to deal with. On the contrary, the longer we leave it the harder it will become to get logistics onto a path to zero emissions, as required by an increasing number of governments around the world.

IT IS TIME TO ACT

2020 has been a pivotal year in many respects. The coronavirus crisis has been particularly challenging for the logistics industry, forcing it to change and adapt at a rapid pace. Pressure has also been mounting to meet longer term climate change goals. Logistical activities account for roughly 10-11% of global CO2 emissions and—by common consent—will be difficult to reduce, due to their very heavy dependence on fossil fuels and high forecast growth rate. In addition, arguments for environmentally-friendly policies are sometimes ignored or sidelined because of fears they will profitability.



This is now changing. In recent years, there has been a step-change in the commitment of governments and businesses to tackle climate change. Over 110 countries have committed to being net-zero carbon by 2050 or earlier, while the EU Green Deal aspires to make Europe the first carbon-neutral continent by 2050. Companies once cautious about suffering a 'first mover disadvantage' in being at the leading edge of environmental action are now joining a broadly-based corporate effort to decarbonise the economy. With over 1100 large companies now aiming to be net-zero carbon by 2050 at the latest, the business world is seriously engaging with the global effort to drive down greenhouse gas (GHG) emissions.

This made it a good time to assess the extent to which logistics and supply chain managers are contributing to this effort.

To do so, we conducted an online survey which secured the participation of over 90 senior executives involved in the management of European logistics systems, over half them working for businesses with turnovers in excess of €1 billion. We were also grateful for a series of case studies from

DOWNLOAD THE REPORT

eight companies including Kuehne + Nagel, P&G, and Tata Steel.

Our report is available online at https://www.europeanfreight-leaders.eu/bfb-temperature/

DISTINGUISHING THE SUSTAINABLE LOGISTICS LEADERS

Using the survey data, we identified a group of leading companies based on two criteria: their progress in establishing a sustainable logistics strategy and the setting of absolute carbon reduction targets for their logistical activities.

These 'leaders' represented just under 30% of the total sample, and might currently be regarded as 'best practice' in sustainable logistics. Among those companies considered to be 'leaders', momentum to decarbonise is strongly

...the three most cost-effective ways of cutting carbon were: shifting freight to cleaner transport modes, improving vehicle loading and switching to alternative energy.

building, though more at a corporate level than within the logistics function. At the other end of the scale, around 15% of businesses do not currently measure their logistics emissions and a third have yet to set targets for reducing them.

CORONAVIRUS HAVING LITTLE OR NO IMPACT ON DECARBONISATION PLANS

Almost 70% of the respondents, and 87% of those in the 'leading' category, indicated that the recovery of their businesses from the pandemic would either have no impact or even a positive effect on their logistics decarbonisation efforts. Indeed measures that companies are now taking to increase the resilience of their supply chains may also improve their environmental sustainability.

STILL 'LOW HANGING FRUIT' TO BE HARVESTED

95% of the respondents said that at least some of their carbon-reducing measures saved money while 40% indicated that half or more of these measures also cut costs. Among the group of leading companies the latter proportion rose to over 60%. Our survey therefore provides empirical evidence that in the management of logistics operations environmental and commercial objectives are quite closely aligned, giving companies a substantial amount of 'low hanging fruit' to exploit.

MOST COST-EFFECTIVE WAYS OF DECARBONIZING LOGISTICS

So what do the company executives consider to be the low hanging fruit? In our survey, the three most cost-effective ways of cutting carbon were: shifting freight to cleaner transport modes, improving vehicle loading and switching to alternative energy. The first two measures accounted for approximately 53% of all suggestions by participants. They have the advantage that they can be relatively quick and cheap to implement.

Rather surprisingly, increasing the energy efficiency of logistics operations was ranked rather low despite the fact that measures such as driver training and the aerodynamic profiling of vehicles are proven to have low carbon mitigation costs and short payback periods.

The decarbonisation of warehousing was ranked 4th place by the participants. It typically accounts for only around 10-12% of total logistics emissions though it should be easier to decarbonize than many freight transport operations. It will directly benefit from the declining carbon intensity of electricity and in many cases offer good potential for on-site generation of renewable electricity using solar panels and/or windpower. This offers the prospect of carbon-negative warehousing offsetting emissions from companies' freight transport operations and thereby helping logistics systems as a whole to reach net zero.

DIGITALIZATION AND COLLABORATION— POTENTIAL GAME CHANGERS

Three-quarters of the respondents, and 87% of those in the leading group, reckoned that digitalisation will have a transforma-

tional impact on logistics over the next five years—enhancing decarbonisation efforts. Of the broad range of IT developments subsumed under the general heading of digitalization, those most likely to promote decarbonisation were considered to be: improvements to supply chain visibility, advances in transport management systems, innovations in vehicle routeing and the use of online logistics platforms. 3D printing, on the other hand, was expected to have only a minor impact over the next five years.

There is a widely-held view that for logistics to reach net-zero emissions companies will have to be much more willing to share their assets. The survey revealed that there already a significant level of supply chain collaboration, though relatively little of it between competing business, what we call 'horizontal collaboration'. Respondents identified a range of barriers to further collaboration including competition, management culture, lack of visibility and concerns about data privacy and possibly breaching competition law.

ENCOURAGING, BUT CAN DO BETTER

Around a third of the companies appear to be making good progress in developing and implementing sustainable logistics strategies and setting a good example to others. The providers of logistics services are better represented in this best-practice group than the shippers using these services. While shippers may feel that they can off-load responsibility for decarbonisation when they outsource their logistics, they should not under-estimate the importance of freight procurement processes in incentivizing carriers to cut emissions. Overall, between a quarter and a third of businesses surveyed are at an early stage in logistics decarbonisation, some of them neither measuring their logistics emissions nor setting targets for cutting them. They risk losing business as environmental performance becomes a more important competitive differentiator in logistics markets.

Prof. Alan McKinnon
Professor of Logistics
Kühne Logistics University
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Professor Alan McKinnon has specialised in freight transport and logistics since becoming an academic in 1979. A graduate of the universities of Aberdeen, British Columbia and London he has, since 2012, been Professor of Logistics at Kühne Logistics University in Hamburg. Over the past four decades, Prof. McKinnon has actively promoted the development of logistics in academic, industrial and government circles. He has conducted around 60 studies on a broad spectrum of logistics topics and published extensively in the logistics and transport literature. He has also been an adviser to several governments, parliamentary committees and international organisations.

Ultimate Guide To Technologies That Are Transforming Supply Chains

BY John Gomez, 6 River Systems

Technology can have a significant impact on supply chains, but supply chain digitization still lags behind digitization of other areas of business across many industries. According to research from McKinsey & Company, the supply chain dimension has the lowest level of digitization (43%) compared to other dimensions, including products and services, marketing and distribution channels, business processes, and new entrants at the ecosystem level. Still, there are several technologies that are transforming supply chains for the organizations that adopt them.

Technology advancements and adoption are driven by better data availability and a push for better visibility, efficiency and accuracy. The right technology solutions allow supply chain operations to make data-driven decisions and provide a competitive advantage, particularly if an organization's competitors are slow to adopt the latest technology advancements.

Let's take a look at the technologies that are making the biggest impact on supply chains around the world:

CLOUD TECHNOLOGY AND CLOUD-BASED COMMERCE NETWORKS

The biggest benefit of cloud technology and cloud-based commerce networks is that they allow organizations to leverage large pools of IT resources without the need to build and maintain data center infrastructure. In the cloud, companies can deploy resources on an as-needed basis, rather than invest in additional servers and storage capacity that they may only need for a short time.

Cloud technology allows organizations to combine all supply chain and logistics information into a single, central solution. Centralized information eliminates data silos and strengthens information sharing through real-time communication (instead of point-to-point data transmission). All entities throughout the supply chain – such as vendors, suppliers, partners, and end consumers – can access relevant, accurate and up-to-date information.

INTERNET OF THINGS

The Internet of Things (IoT), comprised of physical devices equipped with remote sensors that capture and transmit large amounts of data, is already making a big impact in the supply chain industry. IoT supports operational efficiencies in areas such as asset tracking, inventory management and forecasting, improving productivity and aiding decision-making across the supply chain.

For example, companies can track products throughout the entire lifecycle with RFID and GPS sensors. Manufacturers can gather valuable granular data such as the time an item spent in storage, at what temperature, how long it took to sell, the length of time between purchase and fulfillment and how long it spent in transport. IoT sensors provide real-time visibility into inventory levels, making it possible to identify sales trends and make more accurate projections to plan for future manufacturing or replenishment. Fulfillment operations can use data from IoT trackers to better pinpoint the key indicators that lead to better reliability and efficiency in their services.

Should supply chain delays occur, companies can more easily identify the source of bottlenecks and take action to improve processes. Thanks to the ability to track the location of items in real-time during shipping, companies can deliver excellent customer service by providing customers with accurate delivery estimates and real-time location information.

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

A variety of other technologies, such as robots and advanced warehouse management systems, leverage Artificial Intelligence (AI) and Machine Learning (ML) for data-driven decision-making. According to PricewaterhouseCoopers, AI's potential contribution to the global economy by 2030 is USD15.7 trillion. Thanks to AI, companies can automate functions such as demand forecasting, capacity and production planning and predictive maintenance.

For example, AI-driven technologies can analyze weather, real-time sales data and other factors to generate accurate demand forecasts and facilitate logistics plans. DHL developed a tool based on machine learning that analyzes 58 parameters of technical data to predict air transit time delays up to a week in advance. The tool also identifies the top factors im-

pacting shipment delays, such as departure day and the on-time performance of an airline.

DHL's Resilience360 Supply Watch module, part of its cloud-based risk management solution, Resilience360, uses advanced Machine Learning and Natural Language Processing (NLP) to analyze the content and context of 8 million online and social media posts from more than 300,000 sources. By analyzing sentiment from unstructured data from these online conversations, the system identifies risk factors, allowing supply chain managers to take proactive, corrective action to avoid supply chain disruptions.

Robotics enabled with AI and ML augment the work of humans in warehouses and distribution centers. For instance, Chuck by 6 River Systems is a collaborative robot that leverages AI and ML to prioritise work and optimise picking routes in real-time. Collaborative robots like Chuck are programmed to guide users through specific tasks, and they also have built-in quality control measures like barcode readers to help reduce human errors and improve accuracy. Chuck integrates with warehouse management systems (WMS), as well, so it can be used for a variety of warehouse activities such as picking, putaway, counting, replenishment and sorting. Mobile Sort, another solution by 6 River Systems, uses ML to help associates intelligently pick and sort batches into discrete orders. Using images, lights and sensors, Mobile Sort directs associates and validates tasks for better efficiency and accuracy. We'll discuss robotics solutions in more detail later in this guide.

ADVANCED AND PREDICTIVE ANALYTICS

Advanced and predictive analytics are deployed in real- or near-real time. Use cases include dynamic pricing, product quality testing, dynamic replenishment and staffing and resource decisions. Advanced and predictive analytics solutions extrapolate data from IoT, weather patterns and dynamic sales data to help supply chain managers understand future scenarios and make more profitable decisions.

Predictive analytics may sound similar to Machine Learning, but it's actually an application of ML, EDUCBA explains. ML is an AI technique consisting of complex algorithms and models that can be used for prediction. In Machine Learning, algorithms process the data provided without a pre-determined set of rules and regulations. These systems get better with experience, after processing large quantities of data, without the need for explicit programming.

Predictive modeling, or predictive analytics, on the other hand, is a form of analytics that evaluates a set of historical and current data to identify patterns and behaviors, predict the most likely outcomes and estimate the probability of different outcomes based on the data.

According to Supply Chain Dive, based on its analysis of the 2019 MHI Annual Industry Report, 30% of supply chain professionals surveyed say they're currently using predictive analytics at their company. That's an increase from 17% in 2017. Nine out of 10 respondents say they believe predictive analytics will impact the supply chain in the next decade. Just 7% say they're not likely to adopt predictive analytics, a decrease from 11% in 2017. More than half (57%) of those not currently using predictive analytics say they have plans to do so within the next five years.

Predictive analytics has many use cases in the supply chain. Here are just a few examples:

- **Predictive maintenance:** In manufacturing, predictive analytics supports predictive maintenance. Coupled with IoT, parts and sensors transmit data regarding a part's or equipment asset's performance. When data indicates that a part shows signs of failure, manufacturers can ensure that replacement parts are in-stock and plan for repairs to avoid unexpected downtime that may otherwise cause far-reaching supply chain disruption.

- **Route optimization:** Logistics managers leverage predictive analytics to determine the shortest and fastest route to a destination considering factors such as weather conditions, traffic delays and vehicle data such as mileage. By using predictive models to determine the best route with the least risk, logistics companies help to ensure on-time deliveries.

- **Demand forecasting:** Predictive analytics can help warehouses and distribution centers optimise inventory,

ensuring that there's enough stock on-hand to meet anticipated demand. Companies can more easily prepare for seasonal fluctuations to avoid stock-outs and lost sales opportunities. By identifying behavior patterns that indicate a shift in consumer habits, companies can even predict upcoming trends and prepare for unexpected demand shifts.

- **Inventory optimization:** Coupled with demand forecasting, predictive analytics enables warehouses and DCs to optimise inventory levels. Predictive analytics helps determine the inventory quantity and safety stock levels needed to meet demand without incurring additional long-term storage costs for excess inventory.

- **Procurement:** Partnering with cost-effective and reliable vendors is vital for keeping a business running smoothly. By using predictive analytics to evaluate vendors on factors such as reliability, cost and quality, companies can make data-driven procurement decisions and implement contingency plans (such as back-up suppliers) to mitigate risk.

DIGITAL SUPPLY CHAIN TWINS

A digital supply chain twin as a digital model of a real-world entity or system. It represents all relationships between every entity in the real-world supply chain from end-to-end, including customers, warehouses and distribution centers, manufacturers, logistics providers, markets, weather and more. Combining the ideas of IoT and modeling, it uses sensors to gather data which feeds the digital supply chain replica.

"Although digital twins vary greatly in their purposes and the amount of data they hold, all follow the same principle," explains Gartner. "There is exactly one twin per thing. The twin is continuously updated to mirror the current state of the physical thing." According to a Gartner report on findings from a survey conducted in July and August 2018, 13% of companies implementing IoT projects currently use digital twins, and 62% are establishing the use of digital twins or reported having plans to do so within 12 months.

Digital twins serve as proxies for their real-world counterparts. Programming a twin to encapsulate data allows analysts and supply chain leaders to make changes to the twin without impacting any connected applications, and likewise, changes to connected applications without affecting the twin. Supply chain leaders can apply prescriptive analytics and AI to a digital twin to enhance situational awareness and support better, faster decision-making – either by augmenting human decision-making or automating the decision-making process entirely. Supply chain leaders use digital twins to:

- Analyse potential fluctuations in demand

- Identify bottlenecks in the supply chain

- Test promotions in different markets or regions

- Identify risks and prescribe solutions such as arranging backup suppliers

- Apply predictive maintenance for vehicle fleets to minimise disruptions

- Simulate the most efficient routes to ensure on-time delivery

Unilever, a consumer goods company, created a pilot digital twin of a factory in Brazil in 2018 and now plans to implement digital twins of 170 global plants by the end of 2020. According to the Wall Street Journal, "The technology lets the Anglo-Dutch company make real-time changes to optimise output, use materials more precisely and help limit waste from product that doesn't meet quality standards." In the pilot program, focused on a facility that makes products ranging from Dove soap to ice cream, Unilever used the twin to set parameters for various standards, such as the ideal temperature for cutting soap into bars. When the temperature is too high, a machine cools the soap to the optimal temperature.

Instead of pausing production for quality checks, operators track whether the production process is meeting the pre-defined parameters and tests quality offline using the digital twin. If production isn't meeting those parameters, operators then pause production to implement changes. Unilever saved approximately USD2.8 million at the pilot factory by reducing energy consumption and boosting productivity by 1-3%.

WEIGHING AND SHIPPING TECHNOLOGIES

As demand for two-day and next-day shipping continues to grow, manufacturers, warehouses and logistics companies all feel the pressure for speed. Mobile weighing technologies are one solution that allows convenient weighing at the point of loading and unloading. These technologies offer an alternative to the traditional static weighing scales located in various areas in the facility. With traditional weighing scales, operators had to transport products from loading and unloading areas to weighing scales using equipment such as forklifts and pallet jacks. Operators recorded information manually and then transported the product back to the loading or unloading area.

While static scales still have a place in the modern warehouse, they create several challenges. First, the need to transport product back and forth between scales and loading and unloading areas means more time and energy spent on the weighing process. The pallet jacks and forklifts used to transport product between locations contributes to traffic congestion and increases safety risks, as well. Forklift operation causes 100 deaths 95,000 injuries each year across all industries, according to OSHA. Plus, OSHA recommends a maximum speed of five miles per hour for forklifts, which can be challenging when time is of the essence. Mobile weighing technologies reduce these risks by reducing the need to transport product to static scales.

Weighing technologies aid the trucking industry, too:

- **Weighbridge truck scales:** Weighbridge truck scales are placed in areas easily accessible for trucks, and trucks drive onto the scale for weighing. These scales can process many trucks in a short time, and they work for many types of trucks.

- **On-board truck scales:** Today, more trucks are fitted with on-board truck scales, cordless weighing systems that transmit data using load cell technology and air suspension pressure readings to determine the weight of the truck and the load.

- **Portable truck scales:** Portable truck scales ensure accurate weighing results and help to ensure that trucks are loaded to optimal capacity and within legal limits. Portable truck scales are easy to move and offer weigh-in-motion capabilities.

In packaging, cartonization solutions calculate the ideal carton size for orders to reduce waste and eliminate guesswork in selecting the right containers for packaging and shipping. If associates select a carton that's too small or too large, they often end up back-tracking to repeat tasks (selecting a different carton size and repackaging an order). In some cases, associates who select a carton that's too large use it anyway to avoid repeating tasks, resulting in packaging material waste and potentially higher shipping costs.

The most advanced cartonization software solutions factor in weight as a 4th dimension. These solutions go beyond calculating

whether the items in an order will fit in a carton to determine the most cost-effective way to pack an order, considering factors such as carrier dimensional weight rates and labor costs for order picking.

ROBOTICS, DRIVERLESS VEHICLES AND DRONES

Robotics, driverless vehicles and drones benefit the manufacturing and warehousing industries in several ways. Collaborative mobile robots, for instance, increase accuracy and efficiency in the warehouse by setting the pace for warehouse associates, leading them through work zones to minimise walking and keeping them on-task. Leveraging AI and ML, collaborative robots like Chuck by 6 River Systems optimise pick routes in real-time and prioritise tasks based on current warehouse conditions.

Collaborative robots work with a warehouse's existing infrastructure, eliminating costly infrastructure upgrades and lengthy wait times to achieve ROI common with traditional warehouse automation solutions. Equipped with state-of-the-art sensors – the same technology used in autonomous vehicles – Chuck doesn't need wires, stickers or cables to navigate a warehouse. Chuck is fully aware of its surroundings and navigates around obstacles such as boxes and racks with ease. Chuck also slows down when he detects people or equipment in the area.

A flexible, scalable automation solution for the modern warehouse, warehouse operators can rent additional collaborative robots to meet demand during peak periods and return the additional units when demand returns to normal. Operators can also easily transfer Chucks between facilities as needed.

Collaborative robots transport totes or cartons filled with items throughout the warehouse, meaning associates experience less physical strain and fatigue that's common with manual material transport. Warehouses that leverage collaborative robots can realise a 2-3X increase in productivity.

Used to streamline inventory management, drones can scan barcodes on pallets and record the location of every item in a warehouse's WMS, automating the tedious and error-prone process of manual inventory counts. Drones are a safer alternative to manual inventory processes, eliminating the need for reach trucks, scissor lifts and forklifts to access hard-to-reach inventory during inventory counts.

A few major enterprises have explored the use of drones for delivery purposes, such as Amazon's Prime Air, a project aiming to deliver packages to customers in 30 minutes or less. UPS Flight Forward, a subsidiary of UPS, won federal approval to expand its drone delivery operations in the U.S. in 2019. While drone delivery isn't yet a fully realised technology, IEEE Spectrum predicts that commercial drone delivery "will finally be a thing in 2020" in the United States, but with intense regulatory scrutiny.

Like unmanned aerial vehicles, several companies have their eye on making driverless vehicles a reality in the near future. These vehicles may be monitored by a driver remotely who has the ability to take control over the vehicle at any time should conditions require human intervention. With this setup, one operator could monitor multiple vehicles simultaneously. Although still in its infancy, the concept of driverless vehicles is in active development by companies like Waymo and Uber. Ultimately, the possibility of driverless trucks in logistics is on the horizon. According to McKinsey & Company, 65% of consumable goods in the U.S. are transported by truck. Fully autonomous trucks could reduce operating costs by approximately 45%, resulting in between USD85 billion and USD125 billion in savings in the trucking industry.

3D PRINTING

3D printing impacts the supply chain by supporting on-demand manufacturing, which results in inventory cost savings. Because 3D printing relies on digital files or blueprints of a product, developers and companies can implement produce new iterations in less time and at a lower cost. 3D printing allows for sourcing multiple parts from a single source, reducing supplier risk and improving the agility of the product life cycle.

3D Printing Industry reports that, according to research from PricewaterhouseCoopers, 71.1% of manufacturing companies in the U.S. already use 3D printing in some form. Nearly one-third (31.4%) use it for rapid prototyping. 6.6% of manufacturers cur-

rently use 3D printing to produce end products, while 42% of manufacturers say they plan to implement 3D printing for mass manufacturing within the next three to five years. What's more, more than one in five manufacturers (22%) say they believe the restructuring of the supply chain will be the most significant change resulting from widespread adoption of 3D printing.

BLOCKCHAIN

According to Logistics Bureau, blockchain could resolve much of the friction present in the supply chain today. This friction arises from:

- The multiple entities involved in the supply chain and the need to share information freely (yet securely) with those entities
- The complex contract process requiring banking and legal services
- The complexity of tracing parts and products back to suppliers
- Processing time (sometimes several days) to process payments between entities

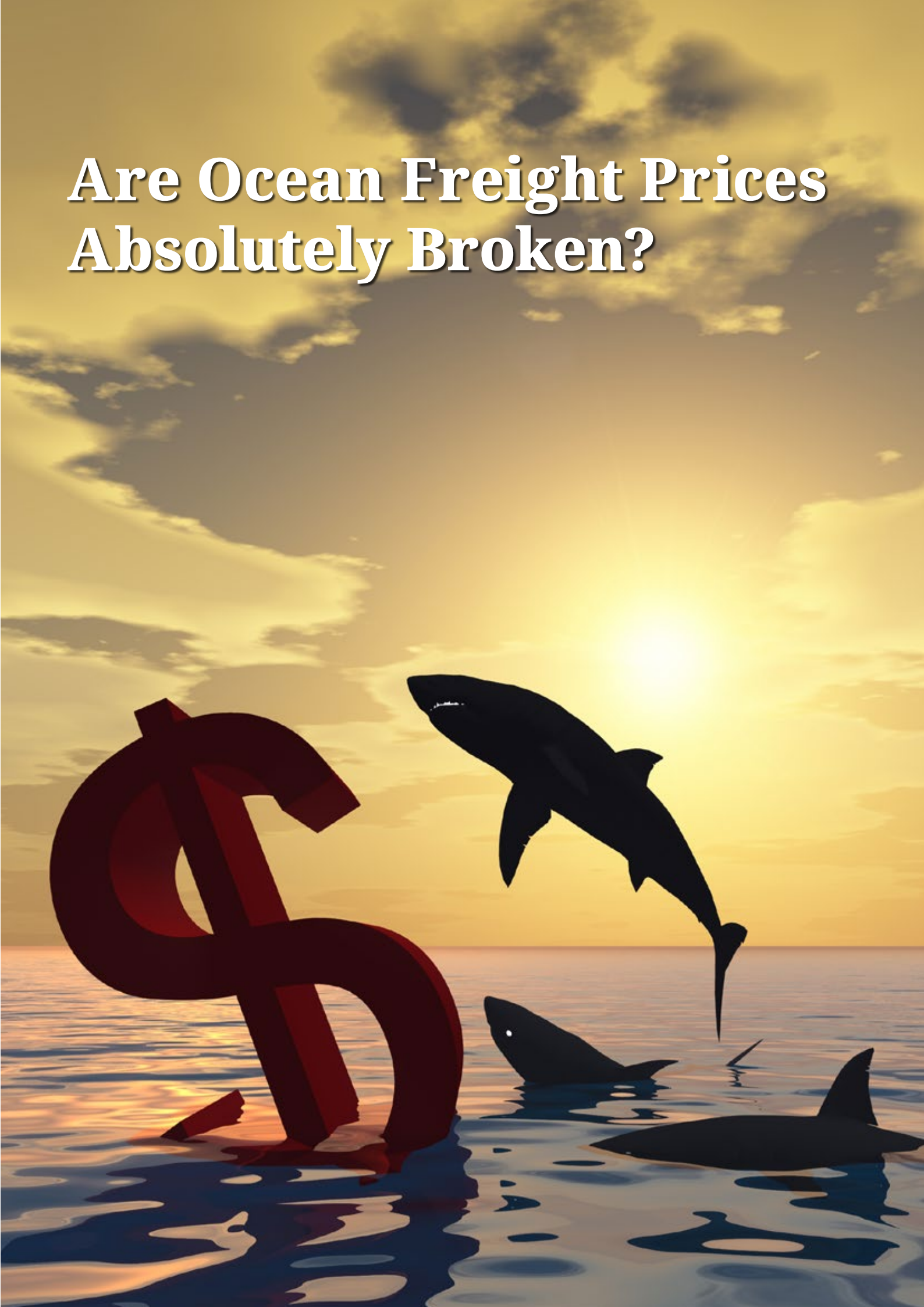
A digital, decentralised ledger, blockchain records transactions in a series of blocks. Multiple copies of the blockchain are distributed across several computers, known as nodes, and every node receives an updated copy for every new transaction. The distributed nature of blockchain makes tampering difficult, as hackers or those with malicious intent would need to update all copies of the blockchain at precisely the same moment. Logistics Bureau points out several benefits of blockchain for the supply chain, including:

- **Reliability and integrity:** All entities agree that the blockchain is a valid record of transactions.
- **Provenance:** Blockchain makes it easy to trace products and parts to their point of origin.
- **Security:** It's impossible to delete transactions from a blockchain. Likewise, it's not possible to falsify inventory records, payment transactions, delivery times or warehouse conditions in a blockchain ledger.

The blockchain ecosystem isn't yet fully mature. All partners, suppliers and other entities involved in a supply chain would need to buy into blockchain to realise the full potential of this technology. By tracking products from the point of origin to the end consumer, blockchain has promise for use in industries requiring excellent traceability, such as food and beverage and drugs and pharmaceuticals.

Supply chains are complex, and any effects on one point in the supply chain tend to have a domino effect. For instance, transportation delays can result in raw materials shortages, which slow or halt manufacturing processes that rely on those materials. Advancements in supply chain technology support the efficient flow of goods through every stage of the supply chain.

Are Ocean Freight Prices Absolutely Broken?



BY Judah Levine, Research Lead, Freightos

Special thanks to Lars Jensen, CEO at Sea Intelligence Consulting and Zvi Schreiber, CEO of Freightos Group for their input and insights for this report.

Shipping containers are like scotch. It's hard to predict what demand will be like for products like these ahead of time. Just take a look at pricing fluctuations for Suntory's Yamazaki 12 Year Old.

But decisions about how many barrels to produce or how many ships to sail have to be made in advance. And the lack of demand visibility is a big contributor to China-US ocean freight rates doubling to the West Coast since June, and passing USD4,000/FEU to the East Coast – which was surprising as most analysts thought that rates and profits would freefall.

But spiking rates led many ocean carriers to skyrocketing profits while the drop in trade volumes led to bankruptcies, bailouts, and financial pain for most other parts of the logistics industry. Their "overperformance" quickly prompted accusations of profiteering or price manipulation, and even a couple government inquiries.

Was it profiteering? And if not, why have prices been skyrocketing when demand is not? Is ocean freight pricing broken?

The more likely explanation is that a combination of prudent capacity management and poor demand visibility led to these prices and the resulting profits.

And it can be fixed. But first, how did we get here?

ALLIANCES FILL IN THE BLANK (SAILINGS)

It starts back in 2008.

As ocean carriers were just signing checks to build massive ships, the global financial crises hit and shipment volumes sunk like a Led Zeppelin.

It took carriers months to adjust capacity to the new low-demand reality. In that span, ocean rates took a dive leading to USD15B in industry losses that year, and ultimately to the high profile bankruptcy of Hanjin Shipping.

In the years that followed, consolidation and the formation of the three major ocean alliances allowed carriers to manage ship supply quickly and broadly by cancelling or "blanking" sailings in times of low demand.

Enter COVID-19.

When the pandemic broke out, carriers were able to respond in a matter of weeks to the sinking demand.

From February to May ocean carriers blanked a record number of sailings on China-US lanes – first as China's manufacturing was closed and then as COVID-19 impacted the US economy.

It worked.

From March through May rates remained stable enough – and generally on par with the previous year despite significant drops in volumes. Capacity management prevented the expected rate collapse and stemmed carrier losses. In a conversation with Lars Jensen of Sea Intelligence, he rightfully pointed out that "prices in these months were not really level, because oil prices were dropping. So actual rates were going up," and carri-

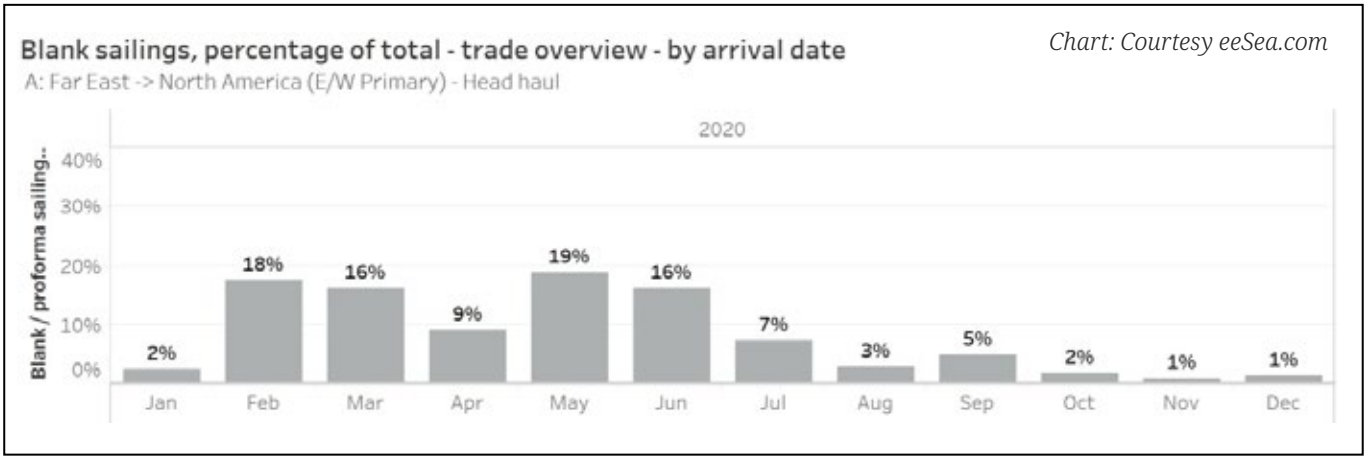


Chart: Courtesy eeSea.com

ers were capturing profits even early on.

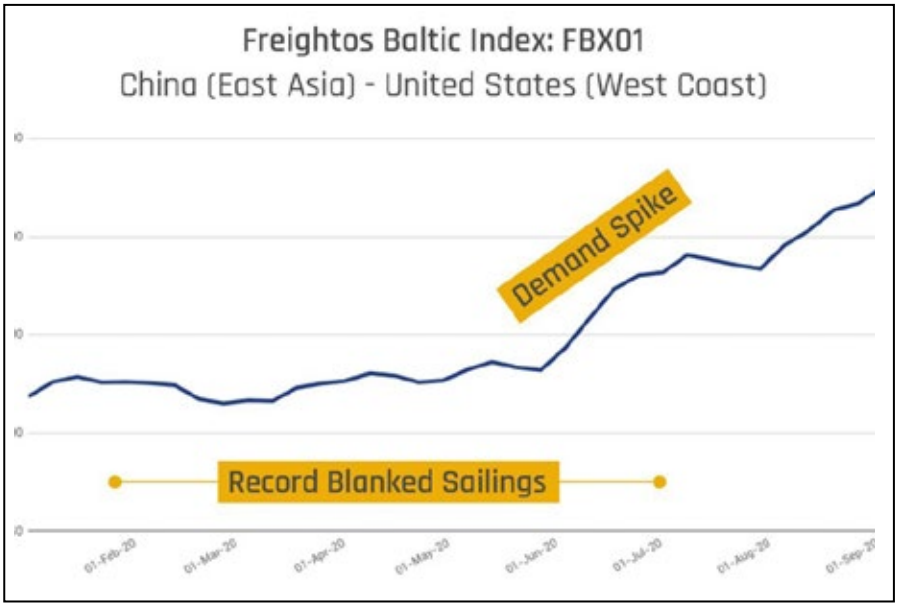
JUNE, SHE CHANGED HER TUNE

Then in June, US demand for South East Asian imports unexpectedly started to recover.

There are likely multiple factors for the rise: More PPE started moving by ocean as supply chains stabilised. Businesses whose inventories ran down slowly since March started restocking. More home purchases and home offices meant new home furnishings. Untapped vacation money shifted to spending more on goods, and the move from brick and mortar to eCommerce required inventories.

But whatever the causes, the carriers couldn't see them coming – certainly not long enough in advance – and couldn't be sure how long they'd last.

The better carriers become at reducing the lag in matching supply and demand, the happier all players will be. Stabler prices, fewer rolled shipments, and less heartburn.



With 16% of scheduled Asia-US capacity blanked in June, demand quickly outpaced supply. This triggered rolled shipments and a backlog that pushed ocean rates up nearly 60% from the end of May to the end of June from China to the US West Coast.

And all the macroeconomic indicators continued to flash recession, so, as Lars once again highlighted, carriers were hesitant to restore capacity too quickly. But demand kept climbing into September. As capacity was eventually restored and then some, the laws of supply and demand kept pushing ocean rates up: China-US West Coast rates doubled by the end of August and were up almost 160% year over year. Rates to the East Coast rose 50% and passed the USD4,000/FEU mark in early September.

The more extreme rise on shipments from China to the US West Coast compared to the East Coast also showed just how much normal patterns were shifting. Importers eager to accommodate the exploding eCommerce market, combined with uncertainty of how long demand would hold up to push BCOs to the quicker route to the West Coast.

Zvi Schreiber, CEO of Freightos Group, added that rates could continue to climb in this way because "ocean freight service has proved to be quite an inelastic good. Door to door shipping costs often only account for a small percentage, perhaps 5-8%, of a business' cost of goods." And because there is also no real alternative to moving large orders across the globe, when demand is present prices would have to increase very significantly (10x?) before any interested shippers are deterred from booking.

CARRIERS HAVE POWER, AND VISIBILITY IS KEY

So where does this leave us?

First: The crisis proved that carriers can now prevent rate collapses through capacity management. Their newfound pricing power means container rates have a floor no matter the market conditions and shippers will likely need to get used to this

fact. And unlike ship building, which would mean huge supply chain bullwhips, containers are relatively agile.

But, second: The extreme rise in June, the ensuing backlogs and rollovers, and the decision to restore capacity relatively slowly were a function of poor data visibility (as well as some endemic lag time that can't be removed from an industry banking on the repositioning of 24,000 TEU vessels). This directly contributed to the speed and possibly the size of the rate spike.

The better carriers become at reducing the lag in matching supply and demand, the happier all players will be. Stabler prices, fewer rolled shipments, and less heartburn. But real improvement can only come through better demand forecasting, and this is where digitization is key.

In recent conversations with industry experts on the direction of logistics technology it was not just the carriers, but leading freight forwarders, BCOs, and even Alibaba, who stressed the importance of innovation for improving visibility of the supply chain.

Each link in the chain talked about the importance of unleashing data to unlock true transparency.

Johnson & Johnson's Head of Advanced Supply Chain Technology, specifically called out the power of tech to improve their own demand forecasting—based on data from the supply chain and retail outlets all the way to social media—as a major goal.

And each link also talked about how data silos and lack of standards within and between companies on the supply chain hinder the extent of their vision.

But the industry is already eyeing the potential of what happens when those silos are removed and data is shared across the chain. This gold standard is sometimes referred to as preemptive logistics, and is built on the premise that all the incremental automation and visibility improvements happening today, can, in a few years, be integrated and combined with AI to trigger orders and shipments ahead of actual consumer behavior.

This end goal will inform the supply decisions for ocean carriers as well.

In the (near?) future, the potential of data will be realised in the form of an optimised supply chain. With it, huge spikes in ocean rates due to poor visibility should be mitigated, providing stability and profitability to the carriers and reliability and stability to shippers.

Which means that when we're ready for that 16 year Nadura, it will be there.