

seaexplorer disruption indicator

Track the trends in global supply chain
disruptions at the world's busiest ports



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Executive summary

April 2022

The global disruptions in sea logistics, which began with the COVID-19 outbreak, have revealed the strengths and weaknesses in the supply chain for businesses and their customers alike. As disruptions outside their control persist, organisations continue to adapt in the hopes of providing a robust and resilient supply chain to meet their production lines and customers' demands.

Nevertheless, we still see schedule reliability deteriorating, leaving many asking:

Will supply chains return to pre-pandemic normal? If so, when?

There is currently no consensus amongst sea logistics experts on when the tide will turn.

The problem is a complex one requiring changes to regulations, equipment supply, skills availability, infrastructure investment and perhaps even consumer demand. A crystal ball answer cannot be relied on for decision-making.

What can be trusted is comprehensive data. To remain dynamic in an ever-changing landscape, such data has become invaluable. It allows for effective planning and quick action when markets begin to change. Without it, businesses could face higher costs and further unanticipated delays in the supply of goods.



Although many year-on-year reports offer insights on where problems exist, they do not indicate whether the disruptions are beginning to alleviate or decline. A trend line evaluating one of the largest pain points would offer more insight—like watching a share price on the stock market. Being able to identify the direction of sea logistics disruptions in terms of impacts on the supply chain is just as important for mitigating losses and capitalising on gains.

This paper outlines the workings and methodology of the disruption indicator by seaexplorer. It allows readers to understand the trends in global disruptions for future planning, risk mitigation and improved productivity.

Context

Looking back

During the last two years, logistics has become a hot topic. As consumers were confronted with empty shelves and delivery delays, businesses had to explain the complexity and fragility of supply chains.

Demand for goods contracted in the first half of 2020, causing many carriers to remove tonnage from the market. Labour shortages began and production and

supply of goods slowed down. Particularly in the USA consumer behaviour changed as spending shifted away from services to goods to support Work From Home as well as home renovations.

Additionally government stimulus packages further increased spending power with a large impact on volumes.



Businesses were caught off-guard. Without sufficient safety stock, they began to quickly stockpile. The sudden sharp increase in demand for space led to large operational issues caused by a combination of congestion, inadequate infrastructure and a resulting crippling imbalance of equipment.

The pandemic created labour shortages at destination ports, reducing productivity on quay and landside operations. This left many ships waiting at sea for days—sometimes weeks. As origin production continued, destination congestion grew and created bottlenecks at warehouses, rail terminals and empty container yards.

As if that wasn't enough, other disruptions strained an already delicate situation. Pre-pandemic, global schedules had reliability levels of over 75%.

However, in the second half of 2020, schedule reliability took a nosedive as supply chain backlogs surged. By the end of 2021, it dropped to a historical low of 38.1%.

This does not take into account additional reliability issues such as lack of vessel space, lack of equipment, blank sailings and roll overs. All this contributes to making the situation worse.



Outlook for 2022

With a positive start for 2022, some experts predict an improved situation by mid-year. Largely due to vaccine and safety regulations, the COVID-19 impact on supply chains is expected to be less than the previous two years. Still, high volumes are anticipated, but capacity levels are unlikely to improve until 2024 when new vessels are put into operation.

With the invasion of Ukraine and subsequent sanctions on Russia, additional stress will be placed on global supply chains. This impact is currently hard to predict.

To restore schedule reliability and clear the backlog, each of the current problems along the supply chain needs to be addressed. This includes improving port infrastructure, extending working hours, increasing labour supply, adjusting regulations and adding incremental landside capacity. This will not happen overnight.

While solutions such as reshoring or nearshoring production are beneficial, they are costly, require years to implement and come with inherent risks.

Robust and resilient supply chains remain essential

With little change expected in 2022, companies have to simplify their supply chains in a volatile environment. The need for real-time data, visibility and analysis has become crucial for the necessary resilience.

Predicting the status of delays as well as the supply of containers and inland services allows for immediate planning

and action. It helps to avoid unforeseen costs and supports exception management. Reports on capacity, schedule reliability and equipment imbalances only offer a partial view of backlogs.

Trend lines provide additional visibility on where improvements or deteriorations are expected.

Kuehne+Nagel's customers get the most reliable data for enhanced visibility – in every situation.

Disruption Indicator by seaexplorer

A new perspective

Seaexplorer visually displays the number of vessels anchored at sea around the globe.

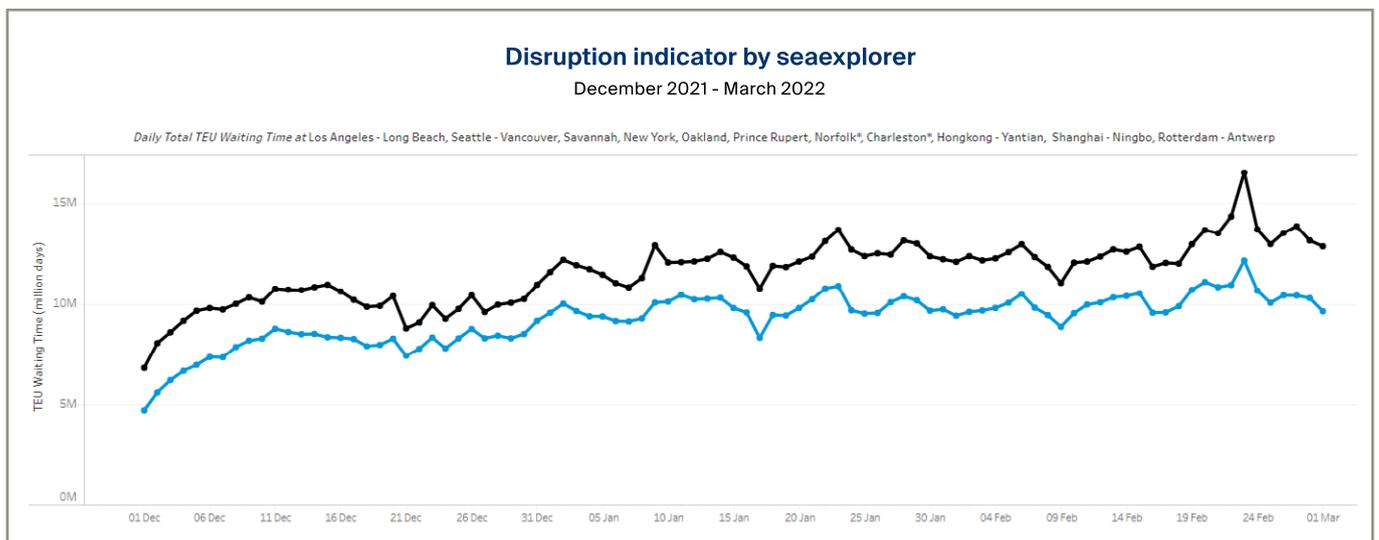
With more than 300 ships waiting daily outside the world’s busiest ports in Europe, Asia and North America, the blocked capacity exceeds two million TEUs. They sit idle instead of being turned around for the next shipment.

These port delays act as a solid indicator of supply chain health or disruption.

However, to get a clear picture of the scale of this issue, aggregated waiting time needs to be considered.

That is why the disruption indicator is important for illustrating the total transportation days lost. It combines the capacity of waiting vessels (in TEU) with wait times (in days).

The disruption indicator line reflects day-to-day fluctuations in the port congestion.



06 Disruption Indicator by seaexplorer

On the 1st March 2022, the TEU waiting time for all hot spot ports was 12.86 million days with North America accounting for almost 80%. Under normal circumstances, the TEU waiting days would be around one million.

By watching this overall trend, we can determine whether global delays are moving towards normality (i.e. one million TEU waiting days).

The disruption indicator is also available per port area. This allows for the tracking of ports of interest and comparing them with alternatives. An upward movement

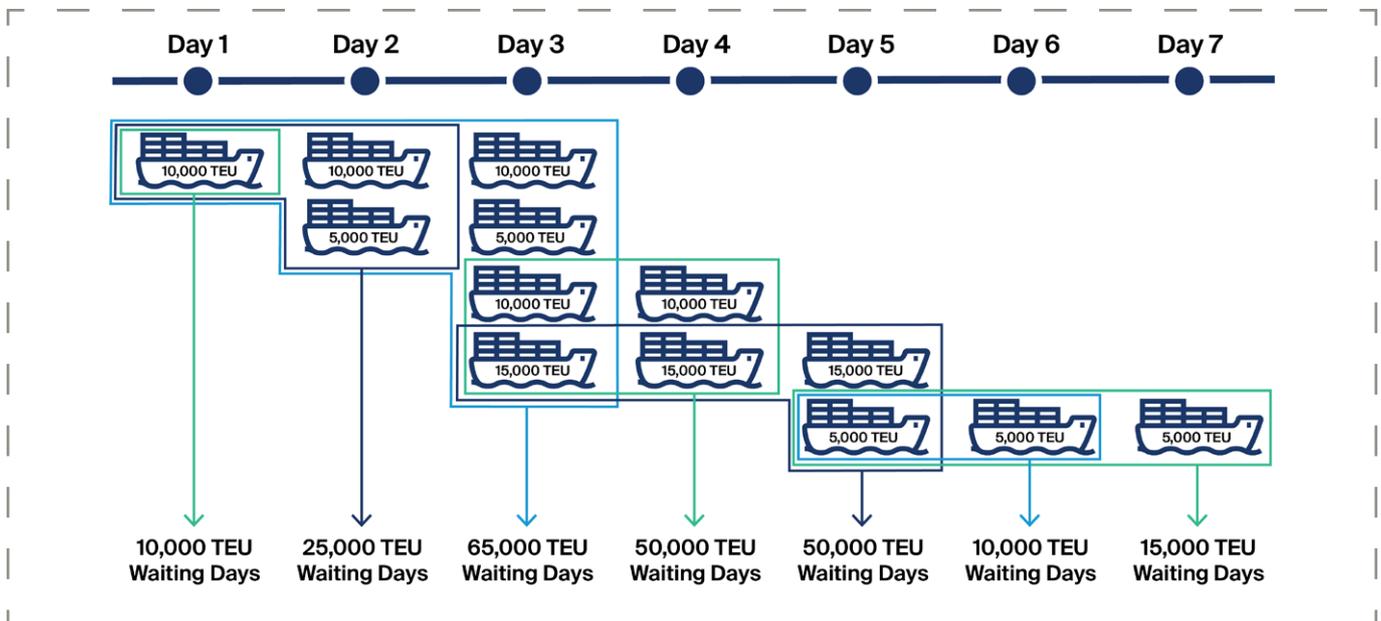
represents a deterioration in the port or landside operations or both. Armed with this information, shippers can select other sourcing, production and future cargo routes.

A decline in the graph represents an improvement in delays, supporting an educated decision for an agile supply chain.

Kuehne+Nagel's seaexplorer app provides daily disruption indicator updates so users always know the current state of the world's ports.



Methodology



As the diagram above explains, the number of TEU waiting days is calculated by multiplying the number of days a vessel/ vessels has/ have been waiting outside the port by its/ their capacity.

Day 1: A 10,000 TEU vessel waits outside the port for a day. This gives us 10,000 TEU waiting days.

Day 2: A second vessel with a capacity of 5,000 TEU also begins to wait. This gives us a cumulative 25,000 TEU days (10,000 TEU x 2 days) + (5,000 TEU x 1 day).

Day 3: Two more vessels arrive outside the port bringing the TEU waiting time to 65,000 TEU waiting days.

Day 4: Only two vessels continue to wait and only their cumulative number of 50,000 TEU waiting days are calculated for this day. (25,000 from day 3 + 25,000 from day 4).

Conclusion

As we wait for the situation to improve in the second half of 2022, there is good news on the horizon. Kuehne+Nagel has tools to assist customers with planning and maintaining a flexible and resilient supply chain.

The new seaexplorer disruption indicator tracks current data to calculate the number of vessels waiting at the world's busiest ports. Plus, it combines the vessel capacity with the number of wait days.

By tracking the development of the congestion at the ports, the indicator provides insights into the extent of these delays and their movement. This information is crucial in helping to predict further disruptions or plan for normalisation.

As a result, businesses can make sound supply chain decisions, limit costs, improve lead times and increase customer satisfaction.

→ [Find out more on seaexplorer.com](https://www.seaexplorer.com)



About us

Kuehne+Nagel is the global number one in sea logistics. Over 10,000 sea logistics experts worldwide ensure Kuehne+Nagel customers can access reliable sea transport on all major trading routes and 63,000 port connections. Its focus is on shipping full container loads (FCL) and less-than-container-loads (LCL), perishable and fresh cargo shipments as well as project logistics.

We offer a flexible and reliable service with more than 750 weekly departures and a multitude of connections in an independent network spanning multiple shipping companies.

Innovative digital information solutions such as seaexplorer ensure full visibility and customised supply chains, whatever the size of the company.

Learn more about our services at → [kuehne-nagel.com](https://www.kuehne-nagel.com)