

Providing Actionable Visibility to P&I Members - Case Study

The entire maritime community has faced increasing pressure to manage sanctions compliance in recent years from governments and authorities worldwide. We are witnessing the growing challenges brought on by so-called “bad actors” who adopt sophisticated practices in an attempt to evade sanctions and engage in illicit activity.

Industry participants – including, but not limited to ship owners, charterers and P&I insurers – often find themselves investigating a complex web of activities and operations occurring in oceans around the world. The difficult nature of these investigations can be costly and lengthy, and almost always require collaboration and assistance from maritime experts. Despite the ongoing challenges, the industry is committed to implement robust mechanisms to identify potentially sanctioned activity as early as possible and mitigate the risk of sanctions.

In the latest article from our Technology in Shipping series, we invited Dror Salzman, Product Manager at Windward, to discuss the solutions provided by advance technology combined with maritime expertise and the role it plays to support industry stakeholders to navigate and detect maritime challenges.

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Tashrina Chowdhury



The EU's 11th sanctions package

The EU's 11th sanctions package went into effect on 24 June, 2023. Unsurprisingly, part of the motivation for this latest iteration of sanctions was the sharp rise in Deceptive Shipping Practices (DSP) as the Russian invasion of Ukraine entered its second year:

“Attempts to circumvent Union restrictive measures have resulted in a sharp increase of deceptive practices by vessels transporting Russian crude oil and petroleum products,” the text of the Council decision reads.

Ship-to-ship (STS) transfers, location (GNSS) manipulation, and dark activity are the main behavioural targets, as noted in the Transport Measures section of the package. Deceptive shipping practices have become complicated, sophisticated, and nearly unrecognizable in recent years.

Given these challenges, and the near ubiquity of cover that they offer to ship owners, P&I Clubs go far beyond mere sanctions list screening. Expectations on due diligence now include vessel monitoring and automated alerts for all mentioned deceptive shipping practices, with full visibility and detection capabilities for every milestone of a vessel's journey. Failure to keep up could risk inadvertent but major sanctions breaches, reputational harm, and other penalties.

The good news is that the International Group Protection and Indemnity Associations that offer third-party liability cover to almost 90% of the world's ocean-going tonnage (the P&I Clubs) don't have to become private investigators. Building on the P&I Clubs' proven track record of discipline in underwriting responsible ship owners and operators, tools such as Maritime AI™ technology can automatically detect and track both the classic and new DSPs.

Initially, bad actors produced easily detectable abnormal patterns. Today, they create AIS tracks and voyages that appear natural and legitimate at first glance, requiring advanced machine learning models and domain expertise for identification”.

Dror Salzman

STS operations

Illicit ship-to-ship (STS) operations are a popular deceptive shipping practice used today mainly to conceal illegal activities, such as oil and grain smuggling, but have significantly increased in the last couple of years with the emergence of sanctions on Iran, Venezuela, and now Russia. STS operations are continuously evolving to better hide the origin of the smuggled cargo onboard.

With more than 460,000 STS operations in 2022 alone, it is impossible to manually monitor every meeting and ensure related organisations are not exposed to risks. The right technology has to go beyond heuristic indicators and look at the behavioural context of each meeting (not just the ships' proximity to one another). Where did the ships come from? Where are they going? Are they the same class? Was the meeting taking place in a sanctions-prone hub?

Accurately detecting and reporting on illicit STS operations can enable the P&I Clubs' sanctions compliance teams to better manage their investigation time, increase efficiency, and ultimately minimize sanctions risks.

Windward's risk evaluation is enhanced through data it pulls from its ship-to-ship model, because STS engagements are often important indicators for various DSPs, such as oil smuggling. Windward offers the only solution in the industry that provides a dynamic, AI-driven STS model, with a 96% accuracy rate of flagging illicit STS.



Automatic (GNSS) manipulation detection

Global Navigation Satellite System (GNSS) manipulation methodologies are growing at an exponential speed compared to previous deceptive shipping practices.

This tactic features the use of a machine-generated location/path to disguise the true location of the vessel. Multiple methods have been identified to carry out this deception, including false transmission onboard the vessel and third-party onshore accomplices. This tactic, first detected in May 2021 by Windward, is growing at an alarming rate and has been constantly evolving.

At the beginning, bad actors would generate odd-looking patterns that were very easy to spot as abnormal. Today, they have mastered the technique and can generate AIS tracks and voyages that upon first glance seem natural and legitimate and are impossible to identify without an advanced machine learning model in place, in addition to domain expertise.

Windward's unique GNSS model, which has a patent pending, is the industry's only model that can quickly and automatically identify location (GNSS) manipulation.

Important consideration

Even simple AI models and systems can take years to develop. This is problematic as changes in political regimes, new regulations or sanctions, a shift in trade routes, etc., can necessitate quick change – such as Russia's invasion of Ukraine and the accompanying maritime sanctions.

The benefit of the Shipowners' Club partnering with a company like Windward, with over a decade of maritime experience, is being able to leverage accumulated best practices for creating new models and retraining existing ones.

A key to AI-driven accuracy and insights is fast time to market and constant adaptation. Retraining existing models and continuously monitoring them is critical. Windward releases new models every other month. Every time a new version is released, results of the new model get compared to Windward's established baseline – and the new model is only released if it performs better than the baseline.