

## Is the future of shipping in ships and ports, or chips and blocks?

Shipping is an industry that's hard to change, but new market opportunities and new technologies are making transformation inevitable.

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Some industries can get disrupted quickly, but shipping is not necessarily one of them. As long as people create products and extract raw materials in one part of the world that are needed in another, it's likely that the physical infrastructure of freighters and ports will play a continuing, critical role in international trade.

However, this doesn't mean the wider operational environment in which shipping operates will be similarly static. Things like insurance, logistics management and backend services for the industry all stand in the crosshairs of current trends in geopolitics, business and technology.

Ultimately, the shipping industry is crying out for new ways of doing business. And emerging technologies, like blockchain and artificial intelligence, may provide that.

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# New geopolitical opportunities and uncertainties

The maritime sector, while not about to jump online, is nevertheless contending with major global trends. Many of these are geopolitical in nature, and include:

- ▶ **The growth of ASEAN:** The ASEAN free trade area is predicted to evolve over the next decade. Japan has been investing in the ASEAN markets for some time, and upcoming trade agreements like ASEAN+1 and ASEAN++ will deepen this trend. ASEAN already sees US \$2.2 trillion of trade every year, and these ongoing political shifts are likely to accelerate this trend. All of this means an easing of trade friction, more details, and more demand for shipping and services that support shipping, like insurance and back-end services.
- ▶ **The rise of South and Southeast Asia:** Linked to the projected growth of ASEAN is the more general trend of emerging economies around maritime Southeast Asia, including India, Thailand, Malaysia, Indonesia and the Philippines. Alongside the growth of economies in the region, we can expect a significant increase in maritime infrastructure and traffic – meaning an increasingly complex web of insurance requirements.
- ▶ **OBOR:** Overlaying all of this is China's One Belt, One Road (OBOR) initiative. OBOR is one of the largest infrastructure projects ever undertaken, and involves investment from China into more than 60 countries around the world. It aims to link China to the rest of Asia and Europe via a land route across Eurasia and a sea route through the Indian Ocean. This sea route involves the substantial development of ports in Hong Kong, Guangzhou, Shenzhen and Shanghai. To give a sense of the scale of the project: the port of Ningbo-Zhoushan, near Shanghai, will be connected to more than 242 sea routes around the world, and more than 600 ports.

All of this is contributing to a general uptick in the global maritime industry. Across 2017, the United Nations Conference on Trade and Development (UNCTAD) reported a 4% growth in global seaborne trade volume, and a 3.3% increase in fleet capacity.

## Storm clouds on the horizon?

However, not all geopolitical developments spell good things for the maritime industry, and the sectors (like insurance) that it supports.

During 2018, the escalation of the US - China trade dispute has introduced a substantial element of uncertainty into global trade operations, which could dampen the growth of the market and associated opportunities in Asia and beyond.

At the same time, a growing international architecture of environmental regulations – such as the sulphur emission regulations recently issued by the International Maritime Association (IMO) – may impose substantial uncertainty on the sector, and complicate growth as ships are refitted for fuel efficiency and new forms of fuel are developed.

And it's not only the need for insurance that is growing – Brexit is driving a breakup of traditional London-based insurance markets, and in turn, the emergence of new insurance and reinsurance markets in Europe and Asia.

All of this means there's a growing and compelling need for better alignment of ports, supply chains, and cross-border activities to ensure maximum operational efficiency – driven by better use of data as an asset. Singapore's September 2018 launch of the Networked Trade Platform (NTP) – providing one digital ecosystem for traders, partners, regulators and other stakeholders – could be one vision of the future. The July 2018 announcement of a blockchain-based trade alliance by European banks could be another.

The question is how will the shipping industry respond?

# Emerging tech and expectations

The future of shipping is both complex and uncertain, a mixture of opportunity and risk. But at the same time, there is a growing demand for more robust measurement and more effective insurance to help organizations cope with these uncertainties.

To some extent, shipping insurance is largely the same today as it was back in its early days four centuries ago. Shippers provide insurers with an inventory, that inventory is valued, the shipping route is assessed for potential dangers and insurance is priced accordingly.

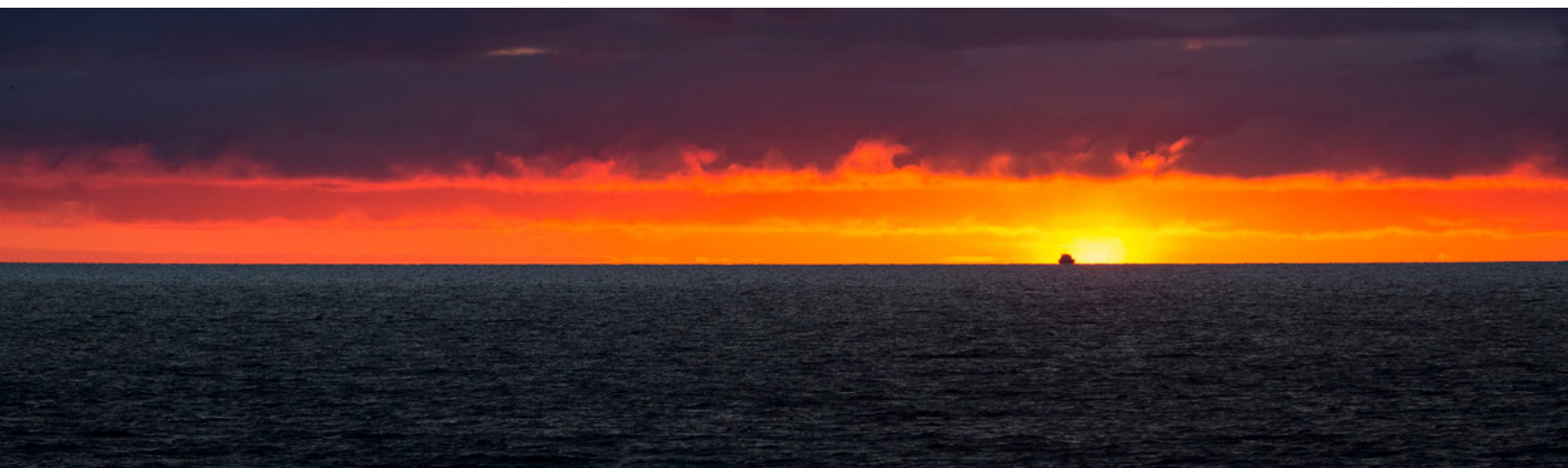
Today, smart sensors, smart shipping infrastructure (including both the ships themselves and the ports that serve them), and more sophisticated and deeper forms of data analytics are giving insurers access to much deeper insights into their clients' operations than ever before. This, in turn, is enabling more accurate risk assessment, and more accurate pricing – along with increased expectations from buyers of insurance and shipping services that their risk will be accurately assessed and their goods appropriately tracked.

But the assessment of maritime risk has always been a challenge – as has the verification of losses when claims have been made. Where other areas of insurance have become more granular and sophisticated, shipping insurance has lagged behind – in part because it's so hard to track items at sea, where connectivity is limited and monitoring activity challenging. This has made pricing maritime insurance difficult – in turn pushing up costs and reducing margins for the industry.

Even without connectivity challenges, the very nature of shipping means that it is full of deep structural complexities. The work itself is innately physical, meaning losses and damage are real. The cargo is often owned by multiple third parties, meaning liabilities can get more complex. Ships often cross multiple jurisdictions, leading to legal complexities. And waterborne craft are unusually exposed to unique forms of risk – including war, piracy, and extreme weather events, any of which can lead to catastrophic asset damage, including sinking.

The potential of new technologies to help make shipping more transparent and insurance more accurate has long been clear – and demand has been rising for a more modern solution. The challenge has been how to realize this potential in such an infrastructure-intensive industry, where redesigning or refitting ships and ports to introduce new technologies can take years – and cost prohibitive amounts.

What shipping – and shipping insurance – needs is something to facilitate the collection and exchange of information in a global ecosystem.



## A blockchain solution

Blockchain interacts with these trends in several key ways.

Blockchain is a remarkable technology because of what it avoids. Because the information it contains is distributed between multiple participants on the chain – and changes in recorded information are simultaneously visible to all participants on the chain – it substantially cuts down on the paperwork and record-keeping involved in traditional transactions.

This means top-level efficiency savings. Not having to have a paper trail, and getting real-time access to asset information, can both massively increase the efficiency of insurance operations and reduce the potential for fraud. This in turn naturally lowers the cost for both the insurer and insured.

But there are other, more transformative implications of blockchain-enabled insurance. Not least, it promises to transform the role of insurance professionals. Rather than shouldering the administrative burden of signing and handling transactions, or negotiating between carriers and clients, brokers and underwriters can instead focus their attention on more value-adding roles, like limit-setting and risk management.

## The transformation of maritime transport

The move to blockchain-powered insurance can also have a direct impact on the logistics of the shipping industry. If asset data can be collected and shared across a blockchain network, in real time, it gives participants in shipping a much better view of how their assets are behaving – and, significantly, how they interact with insurance mechanisms.

For example, if a ship suffers damage to its assets in transit, this information could be automatically recorded by the blockchain, and a relevant insurance policy could pay out without the need for claims inspectors on the ground. For the shipping industry, where large amounts of capital can be tied up in operations, that by their very nature are geographically difficult-to-access, this could introduce significant value.

Or, if a ship is moving through jurisdictions, or geographic zones (such as war zones, or areas with a high risk of weather events), insurance policies in place could automatically modify to reflect this shifting context.

Better ways of tracking and measuring risk may also help in breaking down long-standing silos in the insurance industry. The marine insurance industry has evolved over so many centuries that some products currently require several layers of brokerage to effectively connect buyers and underwriters. This should lead to streamlined services and better outcomes for buyers.

In short, blockchain-enabled insurance platforms could help bring capital and risk management closer together than ever before – something that can drive real strategic value.



**Case study: how blockchain is reducing the fluidity of risk in marine insurance**



## Turning the promise of blockchain into a reality

To this end, EY has been working with Guardtime, Microsoft and Acord, along with key industry participants Maersk, Willis Towers Watson, AXA XL and MS Amlin to produce the world's first maritime blockchain backed insurance platform, Insurwave. Using a Keyless Signature Infrastructure (KSI) cryptographic data timestamping, Insurwave verifies data at its source – in ports, smart devices, or any other point of data generation throughout the supply chain.

The system can then monitor this data in real time, preventing tampering and providing guarantees of provenance to reassure all stakeholders, from regulators through owners, insurers and customers. And all of this can be done far more efficiently than traditional methods, reducing costs, as well as increasing the potential for identifying new insights through more robust tracking of assets.

Ultimately, a blockchain-based insurance platform underpinning shipping could play a critical role in bringing the industry fully into the 21st century and help it address some of its most pressing challenges.

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