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Examples of how to effectively use blockhain in the transport industry

"Doing something"

by **Deanna MacDonald**, *CEO, BLOC*

In several forums last year, blockchain was touted as a silver bullet that could – all on its own – resolve any kind of issues in shipping, from cargo brokerage and emissions tracking to tackling safety concerns. However, the industry is yet to have experienced the fundamental transformation that many predicted. Initial coin offerings are seen as an exciting way to raise capital beyond traditional sources, and regardless of whether it makes any sense, companies scramble over one another to be seen to be "doing something with blockchain."

Maritime Blockchain Labs (MBL) develops blockchain pilot projects together with industry consortia to solve industry-wide problems. Currently sponsored by Lloyd's Register Foundation, MBL is the first industry-led initiative of its kind where we collaboratively source, experiment, prototype, and test new value propositions of blockchain and digitisation in the shipping sector. For more info, incl. on participating as a consortium partner, in sponsoring pilots, or becoming a general member, please click www.un-bloc.com

That hype curve goes up steeply for the last couple of years, but when we get to mid-2019, it flattens out. There is now a considerable amount of scepticism towards the technology. Many have quite rightly critiqued the rush to use blockchain for everything – leading to an unprecedented backlash towards the technology that, two years ago, few had even heard of. So has it come crashing to a halt?

Given that I'm writing this as part of a blockchain consultancy, it's clear that the answer is going to be "no." But looking at the trajectory that blockchain has followed, it's possible to learn some important lessons about what those of us who believe in the technology need to do to keep climbing up that hill.

The paradox

A recent report from the Boston Consulting Group (BCG) does a great job of identifying some of the barriers the technology faces in transport and logistics markets where, initially, the thought of a secure, decentralised store of information seemed to be some of the most exciting and applicable use cases. According to a survey of professionals in the sector, the vast majority of respondents (88%) believe that blockchain will disrupt the industry at least somewhat, mostly within the next two to five years. But nearly three-quarters (74%) say that they are exploring opportunities only superficially or haven't thought about blockchain at all. Why is that?

"The best blockchain networks," BCG argues (and we agree), "are often the hardest to create". At the crux of the issue is a fundamental element of blockchain, namely that of trust. The transformational potential of blockchain networks lies in their potential to create trust between parties without intermediation – but this fundamentally runs counter to many of the business models in which we are embedded. "By increasing transparency, these distributed digital ledgers can mitigate the

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mistrust that often exists among the industry's transacting parties. Yet this same mistrust makes it hard to bring together the industry's diverse participants into a common blockchain ecosystem," the report's authors noted. This paradox is at the heart of blockchain, and an important reason why so many applications in transport and logistics have struggled to find their feet.

Fraught with peril

Instead, we've found the best results come from bringing together industry stakeholders (incl. suppliers, producers, customers, competitors, regulators, and governments) by invitation and aligning interests to address shared friction points across entire value chains. The pain points we've identified are specific but important.

One of these is the handling of dangerous goods. Shipping containers often carry little to no indication of their specific contents. At best, a product code is scanned, traced, and managed by siloed data systems, which rarely interoperate with data systems managed by other stakeholders along the connected value chain. This is compounded by weak enforcement, documentation complexity, and the lack of transparency around the origin and content of containers. When it comes to the declaration of dangerous goods, this want of transparency can literally cost lives. According to the Cargo Incident Notification System (CINS), nearly 25% of all serious incidents on-board container ships were attributable to misdeclared cargo.

In light of this, our latest consortium, funded by Lloyd's Register Foundation, has been set up to explore the use of digital tools for traceability of dangerous goods cargo and immutable attestations and digital audit trails for due diligence with a view to generating more transparency and accountability in tracking dangerous goods; ultimately, reducing incidents. As blockchain is a shared tamper-proof ledger that records the entire history of transactions, it can make information exchange quicker, safer, and easier. In addition to streamlining the process (and saving costs), it provides a high level of visibility and transparency.

Let's look at how this could apply to carrying dangerous goods cargoes. A recognised ploy of some shippers is to declare the cargo as non-dangerous at the time of booking but then amend it at the very last minute to declare that it is, in fact, a dangerous goods cargo. The shipper hopes that the changes are not processed in time and the carrier fails to be informed at loading, therefore carrying the cargo as if it were non-dangerous. But using a system based on blockchain, the rapid exchange of information could result in the carrier being better positioned to make the necessary changes and compliance arrangements. A further benefit is that all of the data related to the nature of the dangerous goods cargo is securely stored in one ledger, immediately accessible to any "permissioned" party participating in the transaction (this can include material safety data sheets and emergency response procedures).

Fuel up

Much is made of the tamper-proof qualities and transparent nature of blockchain. However, it does not readily solve the problem of unscrupulous shippers wilfully misdeclaring the cargo at the time of booking. It would still be possible to knowingly submit false information. Tackling this aspect requires other measures and incentives in addition to a blockchain-based system.

This is where we see the value of our consortium-based approach. By bringing together stakeholders, we aim to not only combine both physical and digital tracking but examine the incentives that underpin the entire value chain, thus using blockchain as a digital foundation that lets us tackle the bigger governance questions.

Working in a consortium-based way, we believe, is how blockchain is going to grow in shipping. It's already starting to show results; last year, we launched our first consortium, looking at tracking fuel quality. Right now, we're in the process of launching BunkerTrace, a product that combines synthetic DNA tagging technology with blockchain to trace marine fuel throughout the supply chain.

With a critical perspective on blockchain, and if we start with consortia and make sure we're building with the industry to genuinely solve problems, it doesn't matter if the blockchain adoption curve has a few peaks and troughs – ultimately, the solutions it enables will speak for themselves. ■