



Blockchain (often) stumbles on the lack of trust that it is supposed to be built on. (Illustration by Panalpina)

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Blockchain: Moving from hype to tangible benefits for supply chains

The initial glitter of blockchain may have taken a beating, but concrete steps are underway to turn its promise into tangible business applications. A keen mover of digital technologies in freight forwarding and logistics, Panalpina has narrowed the use cases for this industry and started a pilot to play the benefits of blockchain to make supply chains more efficient.

Blockchain could well be the next blockbuster technology to truly optimize supply chains. A system where transactions are recorded and maintained

across linked computer networks, blockchain is built on trust. It lends itself to sectors where transactions and data transfers are involved, such as finance, insurance, healthcare or supply chains, promising the decentralized, transparent and secure exchange of data.

Beyond the hype

However, blockchain has thus far fallen short of its potential. About 90 percent of all supply chain related blockchain projects will remain proof-of-concept pilots through to 2020, according to [Gartner Research](#).

Alongside several start-up efforts, there have been at least five blockchain initiatives aimed at the ocean freight industry. Two of the more prominent are:

- The TradeLens global trade platform jointly developed by IBM and Maersk, which started in January 2018, has over 100 participating organizations, only recently [started to sign on carriers](#) such as CMA CGM and MSC, and will now be [launched at the port of St. Petersburg under an agreement with the Russian government](#), and
- The Global Shipping Business Network (GSBN), which started in November 2018 to rival the Maersk consortium and is backed by several terminal operators and ocean carriers including COSCO, Evergreen Marine and OOCL.

While almost all platforms sing the tune of ‘open source collaboration’, blockchain often stumbles on the lack of trust and community onboarding that it is supposed to be built on. [It did seem unlikely, for example, that CMA CGM would join TradeLens](#), back in October 2018. [Concerns over data ownership and control](#) have led players to go separate ways with blockchain.

Another hurdle to broader acceptance and implementation appears to be missing standards, either within a distributed ledger solution or between different distributed ledger architectures. A keen mover of digital technologies in freight forwarding and logistics, Panalpina [joined the Blockchain in Transport Alliance \(BiTA\)](#) in May 2018 to engage with standard setting and collaboration in the industry.

“Panalpina is not a blockchain evangelist, but we have a rational and realistic approach towards the technology,” says Luca Graf, head of Digital Innovation at Panalpina. “Blockchain is only one part of a larger vision that requires the Internet of Things (IoT) and smart contracts to exploit the full potential for end-to-end supply chains, with beneficial effects on costs and time.”

Practical use cases

Panalpina takes a practical approach to blockchain, seeing its promise in optimizing supply chains and making them more efficient. In its ongoing journey to realize the tangible benefits of blockchain, Panalpina has defined eight supply chain use cases for blockchain grouped into four fields of work:

(I) Workflow efficiency

1. Ocean freight core processes: Fully digitize ocean freight order and execution processes. Share documents in blockchain and apply smart contracts.
2. Ocean freight electronic bill of lading (eB/L): Digitize parts of ocean freight order and execution processes. Start with eB/L. Similar to the above but smaller in scope.
3. Captives: Standardize (re)insurance processes between the entities of a company and apply smart contracts in blockchain.

(II) Provenance and authenticity

4. Perishables: [Digitize data flow in perishables chain and store product \(provenance\) and transport information \(cold chain\) in blockchain](#). Apply smart contracts.
5. Pharmaceuticals: Store product (authenticity) and transport information (cold chain) in blockchain. Offer full audit trail showing compliance with Good Distribution Practice (GDP).
6. Spare parts: Store spare part serial numbers in blockchain and provide transparency for spare part users (aviation, military, automotive).

(III) Cargo insurance

7. Insurance: Have trusted information on where cargo containers are located. Allow insurance companies to better calculate the risks (e.g. theft or hazard) and offer tailored insurance coverage to shippers.

(IV) Visibility

8. Tracking: Store tracking data of shipments in blockchain and enhance visibility for shippers.

Panalpina blockchain pilots in Air and Ocean Freight: digitize, store, share and optimize

Of these eight use cases, Panalpina has, after considering business value and implementation complexity, zoomed in on one: the ocean freight electronic bill of lading (eB/L). It has started two blockchain projects with selected customers: one dealing with high-tech industrial goods and the other dealing with office supplies. The aims are similar: to digitize trade documents such as the packing list and the bill of lading, store these documents in a cloud, and use blockchain to realize process improvements and cost savings in the long run.

In both projects, blockchains document the flow of imported goods from Asia to Europe, running in parallel to real shipments, but not interfering with current processes. Running the blockchain projects in parallel to live shipments allows Panalpina and its partners to make in-depth comparisons of current standards and processes, versus what they could be in the near future.

Panalpina has also started a third blockchain project with an IT multinational company, aimed at optimizing air freight shipments from North to South America.

“These early-stage projects are 85 percent about digitization and 15 percent about blockchain – we are starting to see clear benefits in cost savings through simplified and speedier processes, and lower document courier costs,” explains Cedric Rutishauser, senior venture development manager at the [Panalpina Digital Hub](#). “But the real advantage of blockchain lies in the

‘single source of truth’. Improved data sharing between trade partners creates more transparency, with clear ownership and responsibility for each documented step in the supply chain.”

In the next phase, Panalpina expects to pick up on three other use cases – pharmaceuticals, spare parts and ocean freight core processes – to exploit the potential there in the long run.

Cautious pragmatism

Blockchain’s time is still to come. A recent study published in the [International Journal of Production Economics](#) shows that senior supply chain managers have mixed perceptions about blockchain, with some skeptical about its benefits and others convinced that it will improve security and transparency in supply chains, and ultimately bring efficiencies and customer benefits.

This study focused on three core areas:

- The perceived benefits of blockchain to supply chains,
- where disruptions are most likely to occur, and
- the challenges to further blockchain diffusion.

The researchers from Cardiff University, together with Panalpina’s global logistics optimization and analytics manager Mihaela Rit, conducted interviews with 14 supply chain experts and used the so-called sense-making approach to gain a deeper understanding of their assumptions, expectations and knowledge about blockchain and its impact on supply chains.

As the blockchain hype wears off, a more sober, cautiously optimistic pragmatism is taking hold. Blockchain will win over its skeptics not with spectacular leaps and bounds, but small, concrete steps that deliver tangible benefits in terms of lower costs and higher efficiency.

One step in this direction is next week’s [Swiss Blockchain Hackathon, where Panalpina’s IT developer team will join other hackers in advancing real-world blockchain solutions.](#)

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