Reshaping the Future of Global Trade with World’s First Blockchain-based Bill of Lading

Cargo

Business Overview and Technology Bluepaper
Abstract

Logistics make up the backbone of all global trade. Some 90% of all goods in global trade are handled by the sea shipping industry, making sea shipping one of the world’s biggest industries.

This industry still uses one of the world’s oldest methods for issuing proof of ownership: paper. Around 400,000 trees are cut just for the printing of Bills of Lading, per year! Whoever has the Bill of Lading owns the goods in the container, making this piece of paper the most important document in global trade. Its value matches the value of the goods in the container, and averages USD 60,000.

CargoX, an independent supplier of public-blockchain-based solutions for logistics, will “transport” the global supply chain industry into the 21st century. The first step towards that goal is replacing the traditional paper-based Bill of Lading with a fast, safe, and reliable digital equivalent, namely the CargoX Smart B/L. Blockchain and Smart Contracts are a perfect match for this application.

CargoX leverages the security and decentralisation of the blockchain and smart contracts to develop a set of exciting new products for the supply chain industry.
# Table of Content

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>2</td>
</tr>
<tr>
<td>Table of Content</td>
<td>3</td>
</tr>
<tr>
<td>Glossary</td>
<td>6</td>
</tr>
<tr>
<td>An Introduction to the Blockchain</td>
<td>10</td>
</tr>
<tr>
<td>Public and Private Blockchain</td>
<td>11</td>
</tr>
<tr>
<td>Get the big picture of blockchain</td>
<td>11</td>
</tr>
<tr>
<td>An Introduction to Smart Contracts</td>
<td>13</td>
</tr>
<tr>
<td>An Introduction to the Sea Shipping Industry</td>
<td>15</td>
</tr>
<tr>
<td>Biggest Shipping Lines/Carriers</td>
<td>16</td>
</tr>
<tr>
<td>Biggest Freight Forwarders</td>
<td>16</td>
</tr>
<tr>
<td>Who is who? Carrier, Freight Forwarder &amp; NVOCC</td>
<td>17</td>
</tr>
<tr>
<td>An Introduction to Bill of Lading Document</td>
<td>19</td>
</tr>
<tr>
<td>Types of B/L documents</td>
<td>22</td>
</tr>
<tr>
<td>The Challenges &amp; The Problems</td>
<td>24</td>
</tr>
<tr>
<td>Documents, documents, documents</td>
<td>24</td>
</tr>
<tr>
<td>Problems of B/L</td>
<td>26</td>
</tr>
<tr>
<td>Are problems real, and why do they matter?</td>
<td>27</td>
</tr>
<tr>
<td>Is there really no digital B/L?</td>
<td>28</td>
</tr>
<tr>
<td>Global trade paper B/L pain points in numbers</td>
<td>29</td>
</tr>
<tr>
<td>The Solution</td>
<td>31</td>
</tr>
<tr>
<td>How?</td>
<td>31</td>
</tr>
<tr>
<td>Who?</td>
<td>32</td>
</tr>
<tr>
<td>CargoX - a Perfect Answer to How and Who</td>
<td>33</td>
</tr>
<tr>
<td>CargoX Platform and Ecosystem</td>
<td>34</td>
</tr>
<tr>
<td>CargoX’s competitive advantage</td>
<td>35</td>
</tr>
<tr>
<td>Security and safety of CargoX products</td>
<td>36</td>
</tr>
</tbody>
</table>
## CargoX Smart B/L

- Value proposition & benefits of Smart B/L ............................................................. 38
- Who is it for? .................................................................................................................. 40
- Telex Release / Sea-Waybill function of Smart B/L ..................................................... 40
- Size of the market ....................................................................................................... 41
- Comparison of Smart B/L vs. Paper B/L .................................................................. 41
- SWOT Analysis ............................................................................................................ 42

## The Business Model .................................................................................................. 43

- User acquisition .......................................................................................................... 43
- Free service for end users .......................................................................................... 44
- Who needs to pay? ....................................................................................................... 44
- CargoX Credits will do fine ........................................................................................ 45
- How to pay? .................................................................................................................. 45
- Prepaying CargoX Credits .......................................................................................... 45
- Payment via monthly invoicing .................................................................................... 46
- Spending CXO tokens ................................................................................................. 47
- The Go To Market Approach ....................................................................................... 48
- Competition ................................................................................................................ 49

## CXO Token Mechanics ............................................................................................... 51

- CargoX value creation & CXO value capture ............................................................. 52
- Mechanics of the mechanics ....................................................................................... 53
- CargoX Treasury .......................................................................................................... 53
- CargoX smart contracts ............................................................................................... 54
- Rules of market conduct .............................................................................................. 56
- An example ................................................................................................................... 56
- 3 utilities of CXO token ............................................................................................... 57

## CargoX Technical Bluepaper .................................................................................... 60

- CargoX B/L eXchange Protocol .................................................................................... 62
- CargoX B/L Smart Contracts ....................................................................................... 66
- The CargoX API .......................................................................................................... 68
- CargoX API - list of functions .................................................................................... 69
CargoX Decentralised Application (CargoX dApp) ...........................................71
  The CargoX dApp core functionalities.................................................................72
  CargoX dApp showcase.......................................................................................73

Future pipeline of CargoX products.................................................................82

Partners.....................................................................................................................83
  Maker DAO...........................................................................................................83
  Milsped Group.....................................................................................................84
  Your company could be listed here!.....................................................................85

Management team .................................................................................................86

Legal Disclaimer ....................................................................................................88

References ...............................................................................................................89
As the CargoX project itself, this document also bridges and unites two worlds - Logistics and Information Technology (IT). For easier understanding we have provided definitions for some of the frequently used terms.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>B/L</td>
<td>A Bill of Lading (sometimes abbreviated to B/L or BoL) is a document issued by a carrier (or his agent) to acknowledge receipt of cargo for shipment. In British English the term relates to sea transport only, and in American English to any method of transportation of goods.</td>
</tr>
<tr>
<td>Incoterms</td>
<td>The Incoterms rules or International Commercial Terms are a series of predefined commercial terms published by the International Chamber of Commerce (ICC) relating to international commercial law. They are widely used in international commercial transactions or procurement processes, as their use in international sales is encouraged by trade councils, courts and international lawyers.</td>
</tr>
<tr>
<td>L/C</td>
<td>A Letter of Credit is a written commitment by a bank issuer, after a request by an importer, that payment be made to the beneficiary (exporter), provided that the terms and conditions stated in the L/C have been met. A Letter of Credit is a method of payment that is an important part of international trade. An L/C works in similar way to an escrow (money held by a third-party on behalf of transacting parties).</td>
</tr>
<tr>
<td>TEU</td>
<td>The twenty-foot equivalent unit (often TEU or teu) is an inexact unit of cargo capacity often used to describe the capacity of container ships and container terminals. It is based on the volume of a 20-foot-long (6.1 m) intermodal container, a standard-sized metal box which can be easily transferred between different modes of transportation, such as ships, trains and trucks.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Exporter</td>
<td>The term export means the sending of goods or services produced in one country to another country. The seller of such goods and services is referred to as an exporter; the foreign buyer is referred to as an importer.</td>
</tr>
<tr>
<td>Importer</td>
<td>An import is a good or goods brought into a jurisdiction, especially across a national border, from an external source. The party bringing in the goods is called an importer. An import in the receiving country is an export from the sending country. Importation and exportation are the defining financial transactions of international trade.</td>
</tr>
<tr>
<td>Shipper</td>
<td>Someone who orders, provides or sends goods for shipment, by packaging, labelling, and arranging for transit, or who coordinates the transport of goods.</td>
</tr>
<tr>
<td>NVOCC</td>
<td>A freight forwarder, forwarder, or forwarding agent, also known as a non-vessel operating common carrier (NVOCC), is a person or a company that organises shipments for individuals or businesses to get goods from the manufacturer or producer to a market, customer or final point of distribution.</td>
</tr>
<tr>
<td>Carrier</td>
<td>A common carrier in common-law countries (corresponding to a public carrier in civil law systems, usually called simply a carrier) is a person or company that transports goods or people for any person or company and that is responsible for any possible loss of the goods during transport. Carriers are sometimes also referred as a VOCC (vessel operating common carrier).</td>
</tr>
<tr>
<td>Consignee (Cnee)</td>
<td>In a contract of carriage, the consignee is the entity who is financially responsible (the buyer) for the receipt of a shipment. Generally, the consignee is the same as the importer/receiver.</td>
</tr>
<tr>
<td>Blockchain</td>
<td>The public blockchain is a practically incorruptible digital ledger of economic activities that can be programmed to record (financial, bookkeeping and process) transactions; its decentralization provides trust in direct peer-to-peer interactions. By design, blockchains are inherently resistant to data modification.</td>
</tr>
<tr>
<td><strong>Smart contract</strong></td>
<td>Smart contract is a distributed computer program residing on the blockchain that will execute itself when special conditions on the blockchain are met. Smart contracts can be seen as a service-providing infrastructure, and every blockchain-based application (distributed application - dApp) has a smart contract in its core. End users can use existing smart contracts; they do not need to deploy a new smart contract every time they need it (as opposed to the real world, where you would need to sign a new contract between two parties and could not use a public “template”).</td>
</tr>
<tr>
<td><strong>Smart B/L</strong></td>
<td>The blockchain-based Bill of Lading developed by CargoX preserves all paper B/L legacy features and enhances them with benefits offered by the decentralised ecosystem, including speed, security, and transparency. Additionally, it provides a base for further integration of value-added features such as smart contract Letter of Credit (L/C), insurance, etc.</td>
</tr>
<tr>
<td><strong>CXO token</strong></td>
<td>CargoX token (ticker symbol CXO) is an ERC20 Ethereum-based utility token used as a core part of CargoX’s digitized business model. Users will need to spend CXO tokens to utilize CargoX Smart B/L smart contracts and issue a Smart B/L. CXO tokens will be used for all CargoX services, as well as for a payment solution for logistic services offered by other selected logistic partners. ERC20 defines a common list of rules that any token based on Ethereum has to implement.</td>
</tr>
<tr>
<td><strong>Permanent Encrypted Decentralised Data Storage</strong></td>
<td>Storing any large amount of data, such as years’ worth of documents on the blockchain, opens several potential security and scalability issues, and, besides, could become prohibitively expensive. A two-tier approach offers much better flexibility and allows CargoX to focus on its core competence. IPFS has been identified as the most suitable decentralised storage service for permanent storage. Encryption is mandatory, as all documents and non-public metadata are always encrypted. IPFS offers permanent, reliable, and economic data storage appropriate for e-archiving.</td>
</tr>
</tbody>
</table>
The InterPlanetary File System (IPFS) is a protocol designed to create a permanent and decentralised method of storing and sharing files. It is a content-addressable, peer-to-peer hypermedia distribution protocol. Nodes in the IPFS network form a distributed file system. IPFS is an open-source project developed since 2014 by Protocol Labs with help from the open-source community.
An Introduction to the Blockchain

Blockchains are digital data you can trust.

Trust is the foundation and sine qua non of any business. But maintaining trust without a central authority, particularly in a global economy that is becoming increasingly digital, was next to impossible until very recently. Until blockchain, that is!

A blockchain is essentially a shared accounting ledger that uses cryptography and a network of computers to track assets and secure the ledger from tampering. A ledger is a continuously growing list of records, organised in blocks. Each block typically contains a cryptographic hash from the previous block, a timestamp and the transaction data.

Cryptography replaces third-party intermediaries as the keeper of trust, with all participants running complex algorithms to certify the integrity of the whole. Through an agreed-upon consensus algorithm blockchain allows all participants to verify each and every transaction, which prevents illegal transactions and unauthorized duplication of data - the so-called “double spending”.

1. A wants to transfer ownership of tokenized asset (like money in case of bitcoin, or B/L in case of CargoX) to B
2. This transaction is represented online as a “block”
3. This block is broadcasted to every party in the blockchain network
4. These parties approve the transaction as valid, if A really owns the tokenized asset it wants to send
5. The block can then be added to the chain, which makes all transactions permanent
6. B becomes the new owner of this tokenized asset
Public and Private Blockchain

Most blockchains that you heard of are public (open) blockchains. They are open to all and use distributed ledger typically managed by a peer-to-peer network collectively adhering to a protocol for validating new blocks. Once recorded, the data in any given block cannot be altered retroactively without the alteration of all subsequent blocks, which requires collusion of the network majority - something practically impossible in an open blockchain.

Trust is the main attribute of public blockchains (such as Bitcoin, Ethereum, etc.). Public blockchains consist of hundreds or even thousands of participants who have no knowledge of one another and where no one is in charge to enforce rules upon others. Trust is not a fundamental property of proprietary, permissioned, closed and hybrid blockchain solutions (IBM HyperLedger, Ripple, R3 Corda, and others).

Public blockchain technologies secure 99.9% of world’s crypto assets and cryptocurrencies. Advanced cryptography protects blockchain technologies (and cryptocurrencies) and so far, it has never once been hacked.

Get the big picture of blockchain

To get a better understanding of blockchain we recommend reading Deloitte’s article at https://qz.com/628581/blockchain-a-new-mechanism-for-trust-no-intermediary-required or even watching some videos on YouTube (there are really plenty of them). Here are few that explain blockchain from several angles:

- https://www.youtube.com/watch?v=J-ab9was1p0
- https://www.youtube.com/watch?v=SSo_ElwHSD4
- https://www.youtube.com/watch?v=hYip_Vuv8J0
There is a lot of hype around the blockchain, but unfortunately to make things worse, not every blockchain is THE blockchain. The key difference is in the word “public”, which describes a truly decentralized, trustless system, that does not rely on anyone as the intermediary of trust.

Without this fundamental difference a “blockchain” doesn’t really differentiate from a database - as it’s nothing new, nothing worth writing home about. To understand why permissioned blockchains are not a revolution, and which four technologies make the difference, please watch this great keynote talk from the Blockchain Africa Conference on March 2nd 2017 by Andreas M. Antonopoulos: [https://www.youtube.com/watch?v=SMEOKDVXIUo](https://www.youtube.com/watch?v=SMEOKDVXIUo)

If you are intrigued by the blockchain and want to understand the broader implications of how it might disrupt and change humanity as a whole for the better, we recommend watching another great video by Andreas M. Antonopoulos, on the topic of the financial industry and money (the very first industry impacted by the blockchain and bitcoin): [https://www.youtube.com/watch?v=ONvg9SbauMg](https://www.youtube.com/watch?v=ONvg9SbauMg)
An Introduction to Smart Contracts

A smart contract is a computer program that runs on the blockchain.

While a standard contract outlines the terms of a relationship (usually one enforceable by law), a smart contract enforces a relationship with cryptographic code. Put differently, smart contracts are programs that execute exactly as they were set up by their creators.

**Let's illustrate on an example:**

*Using a smart contract, a father could create a program that withdraws funds from his account and deposits them to his child's account, if and when the child's balance falls below a certain level. In theory smart contracts can be used to program all kinds of financial or business agreements, from auctions and escrows to the handling of tokenized digital assets.*

A smart contract is a distributed computer program that resides and executes on the blockchain by all blockchain nodes/participants. Smart contracts only make sense on a public blockchain where trust is assured by decentralization.

While still in their infancy, smart contracts assure 100% transparency. The source code of a smart contract is always publicly readable, which means they are verifiable by anyone and everyone. All transactions made on the blockchain stay on the blockchain forever - including smart contracts. Similarly, once deployed onto a blockchain, smart contracts cannot be changed or revoked.
Ethereum was the first blockchain platform that introduced the concept of programmability and its Turing-complete programming language supported a broader set of computational instructions than Bitcoin before it. This allowed developers for the first time ever to use smart contracts in the most universal way. Smart contracts can communicate with other smart contracts, and developers can use functionalities provided by existing smart contracts and build on top of that.

In recent years many other blockchains have emerged (NEO, EOS, Cardano, Lisk, etc.), that also support smart contract programming. But the modularity of the exponentially increasing ecosystem of deployed Ethereum smart contracts, coupled with the broadest developer community and industry support, guarantee Ethereum’s lead over competing blockchains for many years to come.

**Smart contracts enforce that “the code is the law” and can:**

- Handle blockchain-titled assets
- Function as “multi-signature” accounts, so that funds are spent only when a required percentage of people agree
- Manage agreements between users, say, if one buys insurance from the other
- Provide utility to other contracts (similar to how a software library works)
- Store information about an application, such as domain registration information or membership records
- Open a whole new dimension of possibilities for the future
An Introduction to the Sea Shipping Industry

For an industry that plays a considerable part in running the global economy, most people are unaware of the enormity of the complex system behind it, which touches almost every single thing you use. From the chair you are sitting on to the computer you are typing on and to the steering wheel in your car, all those things were made possible thanks to an industry that has been operating since humans learned how to make things float.

At any given moment there are approximately 20 million containers travelling across the world’s oceans, bringing goods from producers to local markets. The total annual global volume is 200 million TEU (Twenty-foot Equivalent Unit = 20’ or 6.1 meter-long container).

There are over 50,000 merchant ships trading internationally, transporting every kind of cargo imaginable. In 2015, for the first time in history, world seaborne trade volume surpassed 10 billion tons. The global fleet is registered in over 150 nations, and manned by over a million seafarers of virtually every nationality.

200 million TEU

50,000 merchant ships

10 billion tons trade volumes
Biggest Shipping Lines/Carriers

The leading container shipping companies worldwide based on the number of ships

Active ships (all companies) 5,990
Container capacity (in m TEU) 21

<table>
<thead>
<tr>
<th>Company</th>
<th>Active ships</th>
<th>Container capacity (in m TEU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>APM-Maersk</td>
<td>636</td>
<td>3,059,000</td>
</tr>
<tr>
<td>MSC</td>
<td>512</td>
<td>2,810,300</td>
</tr>
<tr>
<td>CMA CGM</td>
<td>461</td>
<td>1,952,600</td>
</tr>
<tr>
<td>COSCO</td>
<td>313</td>
<td>1,488,500</td>
</tr>
<tr>
<td>Hapag-Lloyd</td>
<td>220</td>
<td>1,044,116</td>
</tr>
<tr>
<td>Evergreen Line</td>
<td>194</td>
<td>844,000</td>
</tr>
<tr>
<td>PIL</td>
<td>142</td>
<td>785,600</td>
</tr>
<tr>
<td>OOCL</td>
<td>107</td>
<td>744,000</td>
</tr>
<tr>
<td>Hamburg Süd</td>
<td>105</td>
<td>690,000</td>
</tr>
<tr>
<td>NYK Line</td>
<td>100</td>
<td>681,600</td>
</tr>
<tr>
<td>Kuehne + Nagel Inc</td>
<td></td>
<td>4,053,000</td>
</tr>
<tr>
<td>DHL Supply Chain</td>
<td></td>
<td>3,059,000</td>
</tr>
<tr>
<td>Sinotrans Ltd.</td>
<td></td>
<td>2,810,300</td>
</tr>
<tr>
<td>DB Schenker USA</td>
<td></td>
<td>1,952,600</td>
</tr>
<tr>
<td>Panalpina Inc.</td>
<td></td>
<td>1,488,500</td>
</tr>
<tr>
<td>DSV Air &amp; Sea Ltd</td>
<td></td>
<td>1,305,594</td>
</tr>
<tr>
<td>Expeditors International of Washington</td>
<td></td>
<td>1,044,116</td>
</tr>
<tr>
<td>Hellmann Worldwide Logistics</td>
<td></td>
<td>902,260</td>
</tr>
<tr>
<td>Bollore Logistics</td>
<td></td>
<td>844,000</td>
</tr>
<tr>
<td>Kerry Logistics Network</td>
<td></td>
<td>785,600</td>
</tr>
<tr>
<td>Damco International</td>
<td></td>
<td>744,000</td>
</tr>
<tr>
<td>Geodis</td>
<td></td>
<td>690,000</td>
</tr>
<tr>
<td>Ceva Logistics</td>
<td></td>
<td>681,600</td>
</tr>
</tbody>
</table>

As of June 19, 2017
Source: Alphaliner

Biggest Freight Forwarders

(TEU volume)

<table>
<thead>
<tr>
<th>Company</th>
<th>TEU volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kuehne + Nagel Inc.</td>
<td>4,053,000</td>
</tr>
<tr>
<td>DHL Supply Chain</td>
<td>3,059,000</td>
</tr>
<tr>
<td>Sinotrans Ltd.</td>
<td>2,810,300</td>
</tr>
<tr>
<td>DB Schenker USA</td>
<td>1,952,600</td>
</tr>
<tr>
<td>Panalpina Inc.</td>
<td>1,488,500</td>
</tr>
<tr>
<td>DSV Air &amp; Sea Ltd.</td>
<td>1,305,594</td>
</tr>
<tr>
<td>Expeditors International of Washington</td>
<td>1,044,116</td>
</tr>
<tr>
<td>Hellmann Worldwide Logistics</td>
<td>902,260</td>
</tr>
<tr>
<td>Bollore Logistics</td>
<td>844,000</td>
</tr>
<tr>
<td>Kerry Logistics Network</td>
<td>785,600</td>
</tr>
<tr>
<td>Damco International</td>
<td>744,000</td>
</tr>
<tr>
<td>Geodis</td>
<td>690,000</td>
</tr>
<tr>
<td>Ceva Logistics</td>
<td>681,600</td>
</tr>
</tbody>
</table>

Source: http://hub.controlpay.com/h/i/339086184-top-50-ocean-freight-forwarders
Who is who? Carrier, Freight Forwarder & NVOCC

The Bill of Lading can be issued by several entities from world of logistics, but most documents are issued by two main groups: Carriers (Shipping line) and NVOCCs (Non-Vessel Operating Common Carrier) / Freight forwarders (FF) as carrier’s agents.

Because Carriers are heavily regulated by the International Maritime Convention (IMC), based in the UK, where there is also a lot of politics and bureaucracy that go into forming the conventions, it is not surprising that things have not changed much in the last century. On the other hand Freight Forwarders and NVOCCs are not regulated, and seem to be drivers of the modernization and innovation.

While carriers have consolidated in recent years, the number of Freight Forwarder & NVOCC logistics companies (those that actually talk to customers who need transport service) are growing rapidly. Even the largest NVOCC/Freight forwarder has only 2% market share globally. Fragmentation and fierce competition are driving prices down, and it is not uncommon to see negative margins on some orders. This is needed to keep customers and to fill up the reserved volumes with carriers.

It is worth noting that many of the big shipping companies also act as NVOCCs and freight forwarders in full or to some extent, usually through their “house” NVOCC companies. In many aspects they are virtually synonymous, with the biggest difference between them being in how they act in relation to the cargo.

An NVOCC acts as the carrier of the cargo being sent. A Bill of Lading is important as it holds the NVOCC liable if and when the cargo becomes lost or damaged while in transit, where compensation is often necessary.
A freight forwarder only acts on behalf of the owner of the cargo to facilitate the passage of the cargo from the point of origin to the point of destination. Freight forwarders contract carriers to pick up the cargo, board it onto a ship, and then arrange for another carrier to pick it up at the port. They also handle all the pertinent paperwork and documentation for their customers. A freight forwarder is never liable for any damages or loss, beyond incorrect or incomplete paperwork.

It is also very common for smaller NVOCCs and freight forwarders to have long-standing contracts or agreements with carriers. It is beneficial for both sides to cooperate with one another.

<table>
<thead>
<tr>
<th></th>
<th>NVOCC</th>
<th>Freight Forwarder</th>
<th>Carrier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owns ships</td>
<td>No</td>
<td>No</td>
<td>Maybe</td>
</tr>
<tr>
<td>Issues B/L</td>
<td>Yes</td>
<td>Maybe</td>
<td>Yes</td>
</tr>
<tr>
<td>Can act as a carrier</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Can order transport at carrier</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Is liable for cargo damage/loss</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
An Introduction to Bill of Lading Document

Every sea transfer in the world starts with an issuing of a Bill of Lading document that acknowledges the receipt of the cargo. Bills of lading provide a detailed report of the transported cargo and also include the shipping dates and the costs involved. This is a mandatory document, and every sea freight has one.

The following diagram illustrates the typical life cycle of a Bill of Lading document.

1. The **carrier/NVOCC/issuer** creates the Bill of Lading for the receipt of the goods and sends it to the **exporter (producer/shipper)** of the goods by express courier service.

2. After receiving payment for the goods from the **importer/consignee**, the **exporter** sends the Bill of Lading to the **consignee** by express courier service.

3. The **importer** takes over the goods at the final destination by presenting the Bill of Lading to the **release agent**. The Bill of Lading is usually again sent by express courier service.
A Bill of Lading is also known as a contract of carriage and is a legal document that binds both parties (seller and buyer of the cargo) to the terms agreed upon.

Once the organizer of the transport receives the cargo at the port of shipment, the Bill of Lading is issued by the issuer - usually a carrier or NVOCC.

Depending on the agreed-upon incoterm parity/term, associated costs must be paid to the organizer of the transport. In sea freight there are 4 most-frequently used parities that define the responsibilities of shipper and consignee, and also clarify who pays what:

- **FAS – Free Alongside Ship (at port of shipment)**
  The shipper delivers the goods alongside the consignee’s vessel at the named port of shipment. This means that the consignee has to bear all costs and risks of loss of or damage to the goods from that moment.

- **FOB – Free on Board (at port of shipment)**
  The shipper bears all costs and risks up to the point the goods are loaded on board the vessel. The consignee pays the cost of marine freight transportation, Bill of Lading fees, insurance, unloading and transportation cost from the arrival port to destination.

- **CFR – Cost and Freight (at port of destination)**
  The shipper pays for the carriage of the goods up to the named port of destination. The shipper is not responsible for delivery to the final destination from the port or for buying insurance.

- **CIF – Cost, Insurance & Freight (at port of destination)**
  Similar to CFR, with the exception that the seller is required to obtain insurance for the goods while in transit to the named port of destination. CIF requires the seller to insure the goods for 110% of their value.

Although some of these terms should be used only for non-containerized sea freight they are still commonly used for all modes of transport.
Once the B/L issuer receives the carriage payment, it sends the B/L document to the shipper, who is the owner of the cargo. It is not unlikely for larger accounts to have favorable terms allowing for a delayed payment. In such cases the B/L is transferred from issuer to shipper immediately after issuance. Once payment for the cargo itself has been processed, the shipper sends this original B/L document to the consignee (a buyer/importer of the goods, or in case of a L/C, to a bank).

Upon the arrival of the vessel at the destination port the cargo release agent asks the consignee to present the original Bill of Lading document in order to release the shipment.

The notification of a cargo’s arrival at port of destination is usually sent to the notify party, whose address appears on the B/L document. This party is usually either the buyer or the importer (consignee).

Bill of Lading serves as a document of title to the goods in transfer. Anyone in possession of the document can claim the goods at a port, making it the most important document in the shipping industry.

Usually insured express courier services (UPS, DHL, Fedex) are used for all three deliveries of the B/L document, because the Bill of Lading’s value is equal to the value of the cargo inside a container. An average container is worth around USD 60,000.

This is still a physical, paper document.
Types of B/L documents

There are several types and purposes of B/L documents. Two are immediately relevant for our understanding in order to avoid confusion.

**Master Bill of Lading**

Master Bill of Lading (MBL) is a transportation contract between a shipping line (carrier) and the NVOCC or Freight forwarder. It is issued by the shipping company or carriers at the port of shipping. The Shipper will usually be the NVOCC or their agent or the Freight Forwarder at the port of shipping; and the consignee will usually be the office of the same NVOCC/FF in the port of destination. The cargo release agent will be the carrier’s office at the port of destination.

The document summarises the different quantities of cargo that are to be hauled for transport by the vessel(s). In containerized transport MBL is never issued for a shipment smaller than 1 FCL (full container load). The Master Bill of Lading is also known as the Ocean Bill of Lading. This document is heavily regulated.

**House Bill of Lading**

A House Bill of Lading (HBL) is a transportation contract between a NVOCC/Freight Forwarder and an end customer (shipper). The issuer is the NVOCC/FF at the port of shipping, the shipper is the actual exporter, and the consignee is the importer of goods. The cargo release agent is the NVOCC/FF’s office at the port of destination.

In contrast to MBL, where a minimum unit is 1 FCL, the House B/L has more freedom, and beside the FCL (where goods typically travel from 1 seller to 1 buyer) also offers the option of a shared/consolidated/console shipments. This is where various terms like LCL (less than container load) and combinations like LCL-FCL (also called “buyers console” - where several sellers are combining goods for 1 buyer) or similar FCL-LCL (“shipper console” - where one seller...
is combining goods for several buyers in the same port of destination) come into play.

It is possible to have one B/L covering 20 containers for a one large shipment, or even 5 B/Ls in case of a shared/consolidated/console container. In case of latter, the HBL is issued by a freight or cargo forwarder to each shipper, for goods to be shipped or transported in a group. Hence, an HBL is also referred to as a groupage document or certificate.

The House B/L is issued for all cargo accepted by NVOCC/FF. But behind the scenes there is always an MBL issued by the carrier to the NVOCC (if a consolidating service is used by NVOCC, there might even be one or several sub-master B/L issued). But the end customer (shipper/consignee) does not see any of it. All the details listed on a HBL, like vessel/voyage information, cargo description, number of containers, seal numbers, weight and measurements, accordingly should be and usually are the same as on the matching MBL document. This is in the interest of the NVOCC/FF and their insurance coverage. But shipper, consignee and notify details differ.

The **CargoX Smart B/L** is the solution for the House B/L type of documents. Whenever “B/L” or “Smart B/L” are referenced in the remainder of this document, a House B/L type is assumed.
The Challenges & The Problems

We are confident that supply-chain experts could point out an infinite number of problems and challenges, but in order to keep things simple and focused on blockchain’s role in the process, we’ll focus only on the process and paper document part of the concept. This seems the lowest-hanging fruit for anyone trying to optimize logistics and global trade industry. The 80/20 rule applies: with 20% of effort we can solve 80% of the problem.

Documents, documents, documents...

Convincing people to change is hard, especially when they have been doing things the same way for decades. We put a man on the moon almost fifty years ago, but we are still spending billions of dollars every year moving paper documents around the world in much the same way our ancestors did, with couriers. And there are plenty of paper documents and arhaic processes in logistics.

In maritime shipping one document really stands out - The Bill of Lading (B/L). Bills of Lading have been used to transfer ownership rights for centuries, allowing global commerce to flourish, while maintaining clerical order across a complex web of trading networks and partnerships.

Another also widely-used paper document supporting the global trade is the Letter of Credit (L/C). Coming from the financial sector - another rigid industry infected with tons of paper and complex processes - L/Cs are usually expensive and slower to obtain. Currently issued only by banks, the L/C process is entirely paper-based and requires many input documents, including almost always a Bill of Lading.

The third cornerstone document of global trade is insurance certificate.
As seen from the illustration below, the main actors in the global trade are:

- Producer/manufacturer/exporter/shipper (orders and pays for shipping)
- NVOCC/logistics company/freight forwarder
- Shipping line/carrier
- Importer/buyer
- Release agent
- Importer’s Bank
- Exporter’s bank
- Insurer
Problems of B/L

Because documents associated with global trade are physical paper documents, they come with all the affiliated hassles of handling and sending a physical object. Let’s first closely inspect the simplest case - the Bill of Lading (B/L).

Pain point 1

Speed

It takes ages to receive a B/L in a conventional way. The issuer (carrier or NVOCC) sends it to the shipper (1–2 days), the shipper sends it to the consignee/or a bank of the consignee (3–5 days), then, at the end, the consignee sends it to a cargo release agent at the port of destination (1–2 days). In total, each B/L travels with at least 3 courier services and is in transit from 5–10 days, making it more prone to loss or even theft.

Pain point 2

Document-related problems

The original B/L document can get lost, misplaced, damaged, or even stolen. This pain is felt mostly by consignees as they need to officially declare the B/L lost, which results in weeks of waiting for a new one. Even worse, this might induce additional costs, such as demurrage and detention at the port of destination, late cargo arrival penalties, and in the worst case even total factory downtime, which can result in a multi-million dollar loss.

Pain point 3

High cost

Today each Bill of Lading has to be printed out on paper. This physical object (which has a high value) needs to be sent at least 3 times via express parcel delivery companies such as UPS, Fedex, etc., which is both time-consuming and extremely expensive. Losing or misplacing the document further increases costs, which means that many parcels are insured. Average express courier costs are up to USD 100 for each Bill of Lading.
Pain point 4
Fraud

The paper B/L documents are usually printed on corporate paper (branded with the logo of the issuer). This corporate paper may be stolen or outright falsified and today serves as a common base for fraud and criminal activity. The issuing company “involved” might face a criminal investigation or at least negative publicity, disrupting or undermining its operations. Moving B/Ls from paper to blockchain prevents this completely.

Are problems real, and why do they matter?

Why is it important to reduce shipping time for B/L documents from weeks to minutes, if the ship with the container cargo travels for many weeks anyway?

For one, there are also faster and shorter routes where a container travels only for a few days. Short sea transport plays an important part here, where for example routes from Middle East to Europe, or from Central America to North America, take from 3-5 days on average. Not to mention many shipping lines between ports of the same continent. B/L is issued when the vessel/container departs (usually within 3 days), and consequently the B/L path through exporter might be slower than the ship. Even with the high costs of express couriers the importer might not get their B/L before the arrival of the container.

When crossing the ocean, importers frequently rely on these longer routes, and tend to pay for the incoming goods at the last minute. This helps them optimize their cash flow and finances, but at the same time they risk financial penalties if they fail to provide the Bill of Lading document at the day when the container arrives at port. Expenses pile up for every day a container waits at port, easily overtaking carriage costs in less than a week.
There are also payment delays due to bank transfer, sometimes the importer needs a few days to get the money, there are holidays in between, etc. And besides additional costs for each day of the container waiting in port, other issues might arise due to late container delivery.

The biggest concern by far are definitely lost/misplaced/destroyed or even forged B/Ls. Most customers will dismiss this as a highly unlikely event, but anyone who has experienced it, would do anything to avoid it again.

Is there really no digital B/L?

There have been many attempts to introduce an electronic Bill of Lading, but none have garnered broad acceptance in the industry. Past attempts exhibited the following problems in their design:

- A central, trusted authority was required to run the system.
- An online settlement of value was impossible.
- The rules governing the B/L exchange processes were not transparent.
- Unrestricted and convenient duplication of anything in digital format

The most used “digital” B/L is the Telex B/L, but this has its share of problems as well, and as a consequence it is not so widely used. Besides, with the Telex B/L users still need to issue, transfer, store and archive original physical paper documents. The sad fact is that customer cannot always have Telex with an original B/L. Furthermore, even Telex B/L carries costs and takes days to arrive. In our experience it takes around 3 days to get a Telex release, which is sometimes too long. And the cost is lower but still somewhere between USD 25 and 50. For any unexpected events such as insurance claims etc, the Telex B/L will not suffice, as the original B/L is required.
Another option is the e-Waybill/Sea-Waybill (B/L sent by email, mostly used by carriers), but as with any digital file, it can be copied and sent to multiple recipients, or even spoofed. One function of B/L is, of course, as a release for cargo - which opens up the question of trust. When at the destination port several people want to claim the goods with a printout of the file sent by email - who is the real owner? An e-waybill cannot resolve authenticity issue. Ultimately, since the B/L is the only guarantee exporters have that they will get paid for the goods produced and sent, e-waybills are inappropriate.

Similarly there are numerous others services on the market trying to digitize B/Ls, among them Bolero electronic B/L (eBL) and essDocs EBL, but ultimately they face the same fundamental problems of centralization and trust. Bolero recently started collaboration with the R3 distributed ledger technology (DLT) provider, but we already described the concerns with use of private blockchain derivatives (DLT is essentially just a plain database shared between several servers).

Global trade paper B/L pain points in numbers

<table>
<thead>
<tr>
<th>USD 5 billion</th>
<th>USD 2 billion</th>
<th>400,000</th>
<th>750 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Express Courier Service</td>
<td>Printing</td>
<td>Trees cut</td>
<td>Employees</td>
</tr>
<tr>
<td>+ storage</td>
<td>+ CO² emissions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
All the mentioned pain points have something in common. They are all a consequence of using a physical paper document.

**Digitalisation** is clearly the key, but how?
The Solution

How?

After 8 years of everyday scrutiny in usage by millions of users with billions of international transactions, we now know for sure that humanity already has managed to perfectly digitise one piece of paper. One rather important piece of paper. A paper money bill. Bitcoin and its innovative blockchain technology has revolutionised money as we know it, and has been doing so ever since 2009. At the start of 2018 blockchain technology was securing over USD 800 billion of value in over 1000 different cryptocurrencies and other digitized assets.

With the invention of public blockchain it became possible for the first time in history to connect all the parties in the logistics industry in an open, trustless and decentralised ecosystem with transparently defined rules of operation.

It turns out that digitising the Bill of Lading document is the perfect application for the blockchain.

No marketing sweet talk required—the use of blockchain natively solves it all. Document traveling speeds go off the chart, overall costs are decreased by up to 90%, and native transparency and trackability ensure that lost or stolen documents are a thing of the past.
Who?

Closed platforms and proprietary solutions are a legacy of the 80’s and are by their very definition exclusive. They are hardly a way to solve a global problem for everyone interested. Interoperability through standardization seems to be the obvious answer, but, on the other hand, the official standardized solutions take too long to develop as they involve aligning diametrically opposed interests of (geo)politics. Growing bureaucracy with the need to control everything and corporate shills, spinsters, and lobbyists only complicates things further.

Clearly a market neutral entity is needed to make things work for everyone. In theory and in a perfect world this entity would be a DAO (decentralized autonomous organization), but since regulators still do not know what to do with this emerging advanced company type, it seems to best stay clear of it for now. After all - the reorganization and retransformation of a legal entity is always possible at a later time.
CargoX is a crowdfunded project, established in January 2018. Over 10,000 individuals and companies from 95 countries have completed the KYC procedure while registering their interest in contributing to the project. The company’s initial coin-offering event was a record of its own, as the hard target cap of USD 7 million was reached within 7 minutes. A widespread supporter base and commitment to highest transparency standards made CargoX one of the most market-neutral companies in the logistics with a clear message that as an independent company it is open to all.

CargoX’s laser-focused roadmap and rapid development has raised a lot of interest in logistics circles, which has been reflected beautifully in media and other circles related to supply chains. Consequently the company has managed to secure several strong partnerships, solidifying its long-term position as an independent supplier of blockchain-based solutions for the supply chain.

CargoX leverages the security and decentralisation of the open blockchain and smart contracts and has a deep pipeline of future products for the supply-chain industry. CargoX’s platform is non-exclusive, open to all interested parties. The strength of an ecosystem including partners from various industries and backgrounds enables CargoX to (co)develop a set of exciting new solutions for logistics.

Even though it’s always sad to see a venerable institution fade into history, CargoX is excited to be part of a transformation that will eliminate the need for paper documents in logistics.
CargoX’s solutions are blockchain agnostic, but currently implemented on Ethereum, as it is the most robust blockchain platform on the market, with the strongest development community, strong industry support, and a rich roadmap of innovative future features. We are fully committed to Ethereum as our public-blockchain platform of choice, inter alia because of the highest security and safety standards.

**CargoX Platform and Ecosystem**

To build the ecosystem and drive the market, the CargoX platform combines tools, rules and protocols to ease and incentivise interactions between partners, to boost network growth and facilitate the creation and exchange of Smart B/Ls by actively developing:

- A governing body comprised of industry leaders that will be responsible for the adoption of the open standards in the industry and legislature (TBD).
- CargoX B/L eXchange Protocol for the exchange of Bill of Lading (B/L) documents (fully accessible via the dApp or the API).
- ERC20 CXO token that serves as a protocol utility token and drives the core functionalities of CargoX’s smart contracts and also serves as a payment method for logistics services.
- Non-fungible CargoX ERC721 token for decentralised transfer of digital ownership/tokenized assets like a B/L (TBD).
- CargoX dApp is a web-based decentralised application allowing customers to interact with Smart B/L digital document.
Addons and functional enhancements of the Smart B/L, allowing all interested third parties to develop and connect their blockchain-based logistics services to the CargoX ecosystem. Among the planned improvements are Switch B/L (B/L trading on the blockchain), Telex B/L (simplified user experience, to accommodate document exchange between two parties) and the Smart L/C, which will allow for money transfers in accordance with smart contracts and automatic release from escrow when the buyer receives the goods (or vice versa - release of B/L ownership once exporter receives the payment). The goal is to simplify and accelerate current L/C procedures such as escrows, and make payment intermediaries obsolete by allowing anyone to stake their funds and offer the service on the platform.

**CargoX’s competitive advantage**

Blockchain is the perfect vehicle for the B/L application. CargoX has a simple-to-understand product with strong added value for users and adopters, guaranteeing them a clear advantage over the competition while providing them with a differentiating service.

CargoX remains a neutral entity with an all-inviting, open ecosystem, and is not a competitor to anyone in the global sea-shipping industry.

Mission of CargoX is to modernise logistics industry, to fast forward it into the blockchain era, and do it in small, controllable, incremental steps—one at a time.

While all transfers of B/L ownership are stored in a public blockchain, users’ identities are obfuscated by their blockchain addresses - their real identity visible only to others sharing the same B/L. Similarly the content of the B/L document is securely encrypted and again visible only to involved parties.
Security and safety of CargoX products

Security and safety of our smart contracts is assured thorough vetting and auditing. All production-ready CargoX smart contracts have been vetted by at least one independent auditing expert.

Additionally, any interested party can have our entire deployed smart contract code inspected by either their in-house team or by a number of external auditing professionals. We are confident that this assures highest possible security of our core parts. When this is combined with the vast processing power that secures the consensus mechanism of the world’s largest public blockchain Ethereum (which is 100x stronger than any private blockchain), it just further fortifies the security of the CargoX ecosystem.

CargoX has a dedicated bug bounty program, stimulating researchers and white hat hackers to inspect our code and report any found weaknesses.

CargoX’s smart contracts and ecosystem as a whole are written by a team of experienced in-house developers and software engineers, using only the most secure and vetted libraries, with an emphasis on clear logic and simplified flow. The same libraries are also used in core Ethereum blockchain development, meaning they are inspected and scrutinized hundreds of times every day by the largest blockchain development community on the planet.

On the contrary, proprietary software teams generally consist of fewer people, and don’t always include necessary specialists, such as QA engineers, who help eliminate vulnerabilities. With proprietary/closed software solutions you have no option but to trust the vendor.
CargoX Smart B/L

CargoX’s mission to transport the global logistics industry into the 21st century started with the first piece of the puzzle - replacing traditional paper Bill of Lading documents with a blockchain-based Bill of Lading platform offering a fast, safe, reliable, and cost-effective digital equivalent, namely the CargoX Smart B/L.

The Smart B/L solution is based on a trusted, public, decentralised platform that shaves days and hundreds of dollars from the transport and archiving procedures associated with bills of lading.

The following diagram illustrates the workflow between different parties in the CargoX Smart B/L solution.

The blockchain-based Smart B/L works in a similar way to tokens. The user can create/transfer/claim its ownership.

1. At the origin the carrier uses our dApp (or API call) to create a blockchain-assisted Smart B/L. After exporter pays the shipping costs, the carrier sends the Smart B/L to the exporter’s address.

2. After receiving the money for the goods from the importer, the exporter transfers ownership of the Smart B/L to the importer by using our dApp (or API call).

3. The importer can claim ownership of the goods at the destination port by presenting the Smart B/L token to the carrier or NVOCC at the destination by using our dApp (or API call).

4. At the destination the carrier releases the goods to the importer once the importer proves ownership of the Smart B/L token.
CargoX development and execution is laser-focused. With Smart B/L being the top priority, an MVP (minimum viable product) was released a mere 4 months after the company’s founding, with a target to release the final version in Q3 2018. Currently the Smart B/L is available to all the partners in a private beta. Visit cargox.io/partners-and-supporters to become a partner and start with beta testing.

All global trade sensitive information is hidden from public view and only shown to the importer, the exporter and the issuer of the Smart B/L; special care is taken to properly secure all information about multiple business interactions between the same peers.

Value proposition & benefits of Smart B/L

- Create a Smart B/L quickly
- Send B/Ls across the globe in minutes and track their progress
- Only involved parties can see the state of the document
- The B/L is securely encrypted and stored on a distributed storage system and visible only to involved parties
- Completed B/Ls remain in the archive, accessible to their owner

Secure

No central storage to be targeted by hackers. No single point of failure. Global trade’s most important document is encrypted and stored securely on the blockchain, accessible only through the owner’s’ private keys. It can never be lost or stolen. The Ethereum blockchain employs the most advanced cryptography, providing military-grade security.
Fast
A smart B/L can be issued instantly and can be immediately transferred to the legal owner of the goods, with no middlemen or couriers. Just like sending an email – from Asia to Europe in minutes instead of days.

Paperless
Blockchain-based Smart B/Ls do everything paper documents do. Having them on the blockchain just relieves everyone of the hassle of handling and sending a physical object. Finally there’s no need to print, pack, send or store paper the old-fashioned way.

Cost saving
Paper B/Ls are sent at least three times, with couriers making the process extremely expensive and slow. The average cost for sending a B/L three times is around USD 100 and it takes up to 10 days to reach its final destination. Millions of B/Ls are created every year. Want to save up to 90% of these costs? Now’s your chance.

Auditable & Fraud-proof
Current paper B/L operations are susceptible to fraud because there is no real-time mechanism to timestamp when each transaction was conducted. Also there is no way to record the sequences of events. The CargoX Smart B/L records each action on the blockchain together with a time-stamp. This offers a more secure and transparent way of handling cargo ownership transfers and prevents cargo release prior to release of Smart B/L ownership to the cargo release agent. Armed with this immutable data, it is easy to check whether cargo cleared customs or a container actually moved from a terminal at the proper time.
Who is it for?

The beauty of a Smart B/L is that all parties benefit from its usage. As a general rule of thumb, that means all entities of the global trade ecosystem can profit. This includes:

- NVOCC/logistics company/freight forwarder
- producer/manufacturer/exporter/shipper
- shipping line/carrier
- importer/buyer/consignee
- release agent
- importer’s bank
- exporter’s bank
- insurance companies

Since Smart B/Ls only optimize processes, time and costs, but do so for everyone included, it is not a direct competitor to any of the listed entities. The only thing that becomes obsolete in our ecosystem is the expensive express courier service.

Telex Release / Sea-Waybill function of Smart B/L

Since July 2018 CargoX Smart B/L can be used as a fully functional substitute in place of Telex B/L Release or Sea-Waybill. Using CargoX Smart B/L solves the trust issue, prevents fraud and hardens overall security, resulting in a minimized business risk. By the end of Q3 2018, CargoX will have a simplified, standalone telex release version of Smart B/L solution ready for use in production. CargoX Smart B/L features simple and clean application that uses familiar email addresses in the process of blockchain-secured document exchange. Given its simplicity, users have no excuse to depend on the email for delivery of the most valuable documents.
Size of the market

One of the biggest B/L issuers alone prints out more than 4 million paper sheets a year. The total cost for sending these documents from origin to destination is more than USD 80 million per year, which is covered by shippers, carriers or NVOCCs, and their consignees. And this is only one freight forwarder with a 2% market share. The size of the whole market is 50 times bigger!

Comparison of Smart B/L vs. Paper B/L

<table>
<thead>
<tr>
<th></th>
<th>Traditional B/L (paper)</th>
<th>Smart B/L (CargoX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B/L fee (USD)</td>
<td>from 35 - 100</td>
<td>15 (bulk discounts available)</td>
</tr>
<tr>
<td>Sending costs (USD)</td>
<td>average 100</td>
<td>0</td>
</tr>
<tr>
<td>Change of ownership</td>
<td>by sending original B/L</td>
<td>instant (blockchain)</td>
</tr>
<tr>
<td>Time in transit</td>
<td>5 - 10 days</td>
<td>instant</td>
</tr>
<tr>
<td>Can be stolen</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Can be lost</td>
<td>yes</td>
<td>no</td>
</tr>
<tr>
<td>Archiving</td>
<td>expensive, paper storage</td>
<td>included</td>
</tr>
<tr>
<td>Cargo information (location, temperature,etc)</td>
<td>no</td>
<td>possible through partners’ solutions</td>
</tr>
</tbody>
</table>
The best way to discuss the efficiency of an application or technology is by understanding its strengths, weaknesses, opportunities, and threats. So, let’s make a quick SWOT analysis of the Smart B/L on a public blockchain.

<table>
<thead>
<tr>
<th>S</th>
<th>Strengths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Decentralised network</td>
</tr>
<tr>
<td></td>
<td>Resilient ecosystem</td>
</tr>
<tr>
<td></td>
<td>User-friendly interface</td>
</tr>
<tr>
<td></td>
<td>Highly experienced team</td>
</tr>
<tr>
<td></td>
<td>Security and high-end cryptography</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>O</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Global Trade penetration</td>
</tr>
<tr>
<td></td>
<td>Supply chain optimisation</td>
</tr>
<tr>
<td></td>
<td>Integration with major logistics players</td>
</tr>
<tr>
<td></td>
<td>Counterfeit recognition</td>
</tr>
<tr>
<td></td>
<td>Costs savings</td>
</tr>
<tr>
<td></td>
<td>Speed of transfer</td>
</tr>
<tr>
<td></td>
<td>Near real-time amending of B/L</td>
</tr>
<tr>
<td></td>
<td>Decentralized governance and issue resolution</td>
</tr>
<tr>
<td></td>
<td>Transparency and irreversibility of data</td>
</tr>
<tr>
<td></td>
<td>Lack of open industry B/L standard</td>
</tr>
<tr>
<td></td>
<td>Smart B/L can be extended and complemented with IoT integrations and banking/insurance/QA addons</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>W</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lack of development/marketing funding</td>
</tr>
<tr>
<td></td>
<td>Weak media presence</td>
</tr>
<tr>
<td></td>
<td>Smart B/L industry market unawareness</td>
</tr>
<tr>
<td></td>
<td>Lack of reputation</td>
</tr>
<tr>
<td></td>
<td>Lack of trust in new technology suppliers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T</th>
<th>Threats</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Poor computer literacy among users from the logistics industry</td>
</tr>
<tr>
<td></td>
<td>Lack of blockchain knowledge among our users from logistics and trade industries</td>
</tr>
<tr>
<td></td>
<td>The logistics industry is not known as a rapidly changing or developing environment</td>
</tr>
<tr>
<td></td>
<td>Customers have a perception of B/Ls as paper documents</td>
</tr>
<tr>
<td></td>
<td>Institutional adoption barriers</td>
</tr>
</tbody>
</table>
The Business Model

CargoX’s business model is a simple one: provide a unique service that optimizes the existing B/L experience in every possible way, and do it at a very attractive price point. Income covers operating expenses and provides a healthy profit margin, securing enough funds to drive adoption with strong marketing activities and enabling development of additional blockchain-based services for logistics.

User acquisition

User acquisition will be based on initial strategic positioning and business development through global but targeted marketing campaigns, supplemented by organic growth that is fueled by the positive experience that existing users share via word of mouth. This is further detailed in Chapter Go to market approach.

As we want to convert 100% of our leads to paying customers, onboarding to and using CargoX is very simple. To reach that goal, we decided to meet them more than at half way. We are prepared to go all the way, and that means (at least temporarily) removing everything that could be seen as a barrier or obstacle in their eyes.

Since the majority of these businesses are not on the cutting edge of technology, we decided to offer them the secure and familiar environment of fiat payments. No complications, no small print, no conditions, no options, and no “scary crypto stuff”.

We require no cryptocurrency knowledge from our users, and their accounting departments will be happy to see invoices issued only in USD and/or EUR. The CargoX price list is in USD and/or EUR, and services will be always fully payable in fiat.
Free service for end users

Registration on the CargoX platform is free and open to all participants.

Use of CargoX Smart B/L dApp and API is also free to all participants.

CargoX will provide extensive documentation and user guides, which will facilitate the easy and fast onboarding of customers.

Support will be provided to anyone using our platform via real-time chat available to users within dApp (website) and also by email.

Who needs to pay?

Permission to create a Smart B/L is given only to entities that can issue a B/L in the real world: logistics companies, carriers, or NVOCC. At registration these entities self-declare that they are allowed to issue B/Ls, and are in this regard solely responsible for compliance with their national legislations.

These are companies that are CargoX’s customers, and only they pay to CargoX. The cost of issuing a Smart B/L is considerably less than their current costs of issuing/transporting (paper) B/L.

Furthermore, these companies are free to set their own pricing policy and charge their users (shippers, consignees, and release agents) for the use of advanced Smart B/L features.

CargoX will never charge companies that do not issue B/Ls (shippers, consignees and release agents).
CargoX Credits will do fine...

To simplify the use of the platform, we have decided to introduce an internal “credit” system.

One CargoX Credit will cover the creation of one Smart B/L, with 10 years of archiving included. Whenever an issuer creates and signs a B/L, 1 credit is spent.

The credit system allows us a higher degree of freedom. It not only gives us the mechanism to change the credit’s price as quoted in USD or EUR in the future, but also allows us to set different pricing policies for upcoming services. For example 1 Smart B/L costs 1 credit, but an upcoming Smart L/C could cost 2 credits, and so on.

How to pay?

Customers can choose from three payment plans.
The Go To Market Approach

CargoX is pushing the adoption of the CargoX Ecosystem from multiple sides – NVOCCs/Freight forwarders, Enterprises, Partners/Integrators, and Importers and Exporters. All parties benefit from using the CargoX Smart B/L due to its lower costs, higher security, high transparency, fraud resistance and irreversibility of auditable, time-stamped cargo ownership transfers.

CargoX pursues new customers directly and indirectly. These are some of the ways how we will address the market. They are listed in no particular order:

- At the beginning special focus will be given to bring existing partnerships (where trust is already present) to the platform, by giving them tools for easing their transition and priority support.

- We will promote Smart B/L to the world’s biggest logistics companies, which can use it to gain a competitive advantage when offering it to their clients. They will be adding value for customers, offering great benefits and lower cost simultaneously.

- Enterprises are also on our A-list. Especially those that issue House B/L documents. We can adopt our solution to their needs and either sell them a tailor-made product (plus support), or offer them a special contract.

- The biggest importers and exporters will choose Smart B/L as their first choice (and put pressure on the NVOCCs/logistics companies) in order to lower their costs. Most US/EU manufacturing companies will be interested.

- Resellers/Value added partners/Integrators - approaching their customer base, for a percentage reward of the business they generate.

- Existing logistics platforms will serve as a whole new sales channel for CargoX. Integration will play a key part in this regard.
For on-boarding purposes we have reserved up to 8% of CXO tokens, which will be distributed to the first logistics companies partnering with CargoX and/or distributed to future partners for easier adoption on the market and for establishment and enhancement of the CargoX ecosystem (in both cases in form of Credits redeemable only for the payment of CargoX services).

We are also considering the option to offer customers an iron-clad “no risk guarantee” when they use our officially-recommended hardware wallet. More details will be shared with our customers once we finish evaluating the feasibility of this program.

### Competition

For a brief overview of competing electronic Bill of Lading services, please see the Chapter “Is there really no digital B/L?“.

We do recognize the growing trend of digitizing logistics documents and processes. We are in a very colorful group of companies of all sizes, from startups to corporations, developing a whole spectre of solutions for logistics. Each one concentrates on something different, some as laser-focused as we are, others solving the whole world in one go.

We believe our meticulously planned roadmap and focus on sea freight differentiates us enough from other companies. The initial very positive feedback and increasing partnership traction on all continents confirms our strategy.

We are conducting an ongoing due diligence of competition, and closely monitor the blockchain-funded startups in this area.
CXO Token Mechanics

In the initial CargoX Whitepaper we outlined that all our services would have a pricelist set in USD (and/or EUR). We also stated that customers will be able to pay in fiat, but will be incentivized to pay with CXO tokens to receive a 20% discount. The plan was that each customer would see his CXO balance when logged into the CargoX dApp, with the idea being that customers will be able to redeem their CXO tokens for our services (ie creation of Smart B/L).

Unfortunately, cryptocurrencies, CXO included, are simply too volatile for this to work. Users buying and holding CXO tokens to do business with us would need to carry all the exchange rate risks, and would probably rather just use fiat.

Instead of having CXO or even fiat balance on display in the dApp dashboard, we have found a better solution in the form of an internal credit pegged to the creation of Smart B/Ls. Hence the “CargoX Credit” or even “credit” for short was born. This way, once a user decides to prepay for 100 Smart B/Ls, they will get 100 CargoX Credits and know for sure that they can issue all 100 Smart B/Ls. No fluctuations, no conversions, no worry. Just a simple “credit” system, already known and used at many online service providers. This is by far the best option for stable business and simple accounting.

We realized two more key things.

1. Our customers don’t care about crypto, and when given a chance they are happier if they don’t have to deal with it. In the current “it’s a bubble” sentiment fueled by regulatory fear, uncertainty and the doubt of mainstream media coverage, this is completely understandable. Besides, our customers are companies that are doing most things exactly the same way they did 50 years ago.

2. Why settle only for customers who want a pay-directly-with-CXO discount in order to utilize our CXO token, when we have a simpler way to use it for all purchases?
CargoX value creation & CXO value capture

CargoX creates value by providing time-saving and entropy-reducing services. But can this value creation be captured in CXO value, without CXO being flagged as an security token?

Despite the decision to remove the need for customers to pay for CargoX services with the CXO tokens, the CXO token now plays a fundamental utility role in the backbone of the CargoX platform. Our smart contract handling the issuance of Smart B/Ls requires credits in order to create B/Ls, and the only way to get credits is to redeem CXO tokens. This means that CXO tokens can be viewed as the “gasoline” that fuels the issuance of Smart B/Ls. And gas is always consumed in the process.

This makes CXO not just a pure utility token, but even places it into a special subcategory - a usage token. And the decision to use it as a mean of internal payment - for every Smart B/L purchase - creates a unique velocity sink, which definitely captures the value in the CXO.

If you still don’t understand utility tokens, we recommend reading Balaji S. Srinivasan’s article titled Thoughts on Tokens (https://news.earn.com/thoughts-on-tokens-436109aabcbe) where he thoroughly explains the concept of utility token by comparing it to a paid API key: “For example, when you buy an API key from Amazon Web Services for dollars, you can redeem that API key for time on Amazon’s cloud. The purchase of a token like ether is similar, in that you can redeem ETH for compute time on the decentralized Ethereum compute network. This redemption value gives tokens inherent utility”. And we can add that purchasing CXO tokens with dollars is similar, as you can redeem them to create Smart B/Ls on the CargoX platform.
Mechanics of the mechanics

Instead of torturing customers with a mandatory trip into cryptoland to obtain CXO tokens, we have developed a transparent process for topping off customers’ CargoX Credits balance when they pay their fiat denominated invoices with SEPA/SWIFT bank transfer.

For each sold CargoX Credit a fixed amount of USD 10 will be used to buy CXO tokens.

Remaining USD amount (an exact amount depending on the customer’s discount) will be used to cover expenses associated with the realization of a Smart B/L, including but not limited to the costs for all needed transactions on the Ethereum network and other direct and indirect Smart B/L associated costs (servers, back-office systems, user support, etc.), as well as other expenses, like dealing with exchanges and banks, etc.

In order to avoid many small and costly USD transfers to exchange(s), and similarly frequent withdrawal fees to get CXO back, and especially to prevent malicious players to try to gamify the automated market buying, CargoX’s Treasury wallet will serve as a buffer for USD-to-CXO conversion. Obtained CXO tokens will be sent to the smart contract handling CXO-to-credit conversion with the ID of the customer, which will top up the customer’s credit balance, allowing them to create a Smart B/L, i.e. use our services.

CargoX Treasury

CargoX Treasury wallet funds the overall expansion of the CargoX ecosystem. To maximize the efficiency but to also keep our operation transparent we have decided to impose an upper and lower limit to number of CXO tokens we must hold in it. The CargoX Treasury wallet will hold between 10-25% of all CXO tokens in the first year. CargoX may buy and sell CXO tokens in a CargoX Treasury wallet at any time as long as its balance stays between the specified upper and lower limits.
The possibility to buy CXO tokens on the market at our discretion gives us more flexibility and makes treasury transactions less predictable to market speculators. It also means that we can buy or sell CXO tokens on the market when the price is favorable and/or when there is an increased service demand. On the other hand, we don’t need to buy CXO tokens every time someone purchases credits, which again allows us to better respond to market dynamics and makes our system less complicated.

CargoX smart contracts

The CXO-to-credit converting smart contract has a fixed price for the credit set at USD 10. Required CXO amount per credit is calculated at least once per day, based on the average CXO/USD price in the previous 24 hours. Current CXO price quote for credit can be obtained through API call.
CXO tokens received by the smart contract represent created value and are a second stream of income for CargoX (or the first one when advanced customers interact directly with the smart contract by redeeming CXO tokens for credits, instead of using invoicing/prepayment via CargoX dApp).

After smart contract issues credits to specified customer’s account, **70% of all received CXO tokens** are sent to the 0x00000000000000000000000000000000 address and essentially permanently removed from circulation (burned). The **remaining 30% of the CXO tokens** will be returned into CargoX’s Treasury wallet (again to cover the costs associated with creation of Smart B/L and transfers on the blockchain). **CargoX will set the CXO token burning percentage yearly**, dependent on the several factors including legal framework, adoption of the platform, market conditions, etc. The 70% burn rate is valid for first year.

We feel that this model is a fair policy for all parties, with zero downsides. We understand that burning tokens nowadays is not the preferred mechanism for utility tokens, but are confident that because money used for buybacks derives from customers’ payments for the service rendered, this also means that the tokens are essentially fuel spent for the usage of Smart B/L service and partially spent (destroyed) in the process - which corresponds to the nature of a utility token.

**CargoX reserves the right to change burn percentage and pricing model at any time if it deems necessary for business reasons.**
Rules of market conduct

To prevent price and liquidity manipulation when interacting with exchanges, CXO tokens will be repurchased at a price that does not exceed the highest independent bid or the last quoted transaction. Our actions are not meant to inflate the market price but rather serve as price support. This will minimize interference with exchanges’ order books and liquidity.

An example

A customer has a need for 100 Smart B/Ls and decides to use a prepaid option to buy as many CargoX Credits and is charged USD 1400 for them (price per credit is USD 14 because of the bulk discount). Once the money is received, we need to exchange part of it to CXO tokens, as they are needed by smart contract in order to top up the customer’s credit balance. The smart contract uses a flat rate of USD 10 for 1 credit, which means that for 100 credits we need to provide USD 1000 worth of CXO. The average CXO/USD rate will be calculated at least once per day, based on the price in previous 24 hours. Let’s assume it is currently at 1.00, in which case we need to obtain 1000 CXO (1000 x 1 = 1000). CargoX obtains and sends the required 1000 CXO tokens to the smart contract along with the ID of the customer. After smart contract tops up customer’s credit balance by 100, it transfers 700 of received CXO tokens to the burn address (1000 * 70% = 700), and returns the remaining tokens to the CargoX Treasury wallet.
3 utilities of CXO token

CXO token is a pure utility token: it has the characteristics of an usage token and also serves as means of payment. We expect that other of CargoX ecosystem partners will soon realise that they can gain new customers from a growing pool of more than 5,000 people (wallets) who at the time of writing this document own CXO tokens. We are confident that holders of CXO tokens are interested in advanced logistics services, as they have once already acted on their understanding that logistics is the perfect application of blockchain technology.

The inherent utility of CXO token is derived from core interactions, assisted by CargoX protocol services:

- CXO tokens might be required to obtain access to the special parts of the CargoX B/L eXchange Protocol or to perform a special role (one possible example - being an arbiter in the blockchain-based dispute resolution by means of arbitration - details TBD)

- providing discounted usage fees if depositing/using CXO tokens, including for services provided by our partners (TBD),

- CXO tokens will be the preferred payment mechanism for sea freight and other shipments on selected web-logistics portals, providing discounts of up to 30%,

- CXO tokens will have to be spent on powering Smart B/L contracts (credits),

- CXO tokens will be distributed through incentivisation mechanisms for facilitating network (user base) growth, increasing interactions with the system, tailored product development and personalisation, onboarding and faster adoption, facilitating API integration with our system.
Faster user adoption and more frequent usage of Smart B/Ls via dApp or our CargoX B/L eXchange Protocol (API) will generate more demand for CXO tokens.

We believe that with strong current and future partners, CXO tokens will be used beyond the CargoX ecosystem. Our open strategy is to allow interested partners to use and accept CXO tokens as a payment mechanism for their products and services. With every new partnership, with every new user, the value created by CargoX should increase, and we believe this will be captured in the price of the CXO token as well.
CargoX

Technical Bluepaper
CargoX Technical Bluepaper

The platform powering the CargoX ecosystem is highly modular, and its architecture was designed to allow for a high degree of adaptability, upgradability, growth, and scalability, while at the same time ensuring the benefits of public blockchain - security, trust, and immutability.
CONFIDENTIAL
ONLY AVAILABLE TO PARTNERS WITH A SIGNED NDA
CONFIDENTIAL

ONLY AVAILABLE TO PARTNERS WITH A SIGNED NDA
The CargoX API

While all CargoX solutions can be accessed and used simply through a web browser, our API is open and allows unlimited integration options. All CargoX solutions are 100% API-enabled by design. Customers, resellers or other interested 3rd parties can easily integrate complete Smart B/L functionalities into their existing business/enterprise software and enjoy all the benefits, without disturbing existing core business processes or retraining the workforce.

Complete integration using CargoX API calls allows companies to maintain their current business software architecture and still issue Bills of Lading completely digitally.

Enterprise suite of API calls

Bill of Lading can be handled through the API layer as part of customer’s process automation solution. We provide a complete audit log of all B/L activity and offer insights into customer’s B/L status.

A standards-based architecture was used for the creation of CargoX API. Standard RESTful APIs ensure interoperability and the broadest possible support.

Professional services

CargoX offers integration and advisory services through a network of partners. If integration into the SAP or IBM business software is needed, please ask us for a quote. CargoX is currently developing a native SAP CONNECTOR. Its release date depends on the certification process, and will be announced in Q3 2018.
CargoX API - list of functions

The CargoX Smart B/L is still in development. The list of available API calls is not final and will grow with the addition of new services and functions. Please note that during the MVP testing phase API calls are subject to change without prior notice (to be finalized after the release).

For the latest version of API documentation, description and grouping of API calls, code snippets and other examples please contact us.
CargoX Decentralised Application

CargoX dApp
CargoX provides the implementation of the protocol and an application that allows end users to interact with the protocol in a user-friendly fashion.

Technically, the CargoX B/L eXchange Protocol is sufficient for transacting. Everything can be accomplished by following the protocol and contract definitions and transmitting the required transactions to the Ethereum network.

We believe that such an approach makes it possible for any organisation to participate in the CargoX ecosystem and integrate the services provided by the CargoX B/L eXchange Protocol. Even in a case where CargoX would for some reason cease to exist, the deployed smart contracts and CargoX B/L eXchange Protocol knowledge would allow interested parties to continue using the service.

We will prepare standardised APIs and SDKs for seamless integration with the CargoX B/L eXchange Protocol. Additionally, we will incentivise the integration with existing information systems and end-user applications. As a result, a large pool of organisations with varying degrees of complexity will participate, which, in turn, will expedite the adoption of the CargoX B/L eXchange Protocol.

The CargoX dApp does not only serve as a full-featured, production-ready implementation of the CargoX B/L eXchange Protocol, it can also be used as a reference implementation for future industry partners.
The CargoX dApp core functionalities

The dApp provides the following core functionalities:

For the issuer (NVOCC):
- Creating a draft of B/L documents (inviting other parties to CargoX via email or ETH address/obtaining permission from parties already on CargoX to use their details)
- Signing of draft B/L document and issuing B/L on the blockchain
- Transfer of B/L documents to shipper
- Listing and retrieval of issued B/L documents, along with their owners and process status
- Proof of ownership tool (TBD)
- Annexation of B/L documents (TBD)
- Request for Dispute/Issue Resolution (TBD)

For the shipper and consignee:
- Listing and retrieval of owned B/L documents, along with their owners and process status
- Transfer of B/L documents to other parties.
- Annexation of B/L documents. (TBD)
- Arranging payment guarantees (TBD - L/C stage)
CargoX dApp showcase

The CargoX dApp works in all modern web browsers on all operating systems. Depending on whether user has a hardware wallets (Ledger / Trezor) some restrictions might apply.

Browser support when using hardware wallets (Ledger/Trezor):

Mac OS

- Chrome
- Firefox

Windows OS

latest versions of IE, Firefox, Chrome and Opera

- Chrome
- Firefox
- IE / Edge
- Opera

To obtain the latest information on supported operating systems and browsers please refer to the website of their respective manufacturers.

The CargoX dApp was designed to provide users with seamless and user-friendly interaction with the CargoX B/L eXchange Protocol.
1. Login screen

All standard blockchain-authentication mechanisms are supported. CargoX recommends the use of hardware wallets like Ledger Nano S or Trezor, for which we provide full support.
2. Registration mandatory

If this is user's first time at CargoX, the system needs to know their details. Users who want to create Smart B/Ls, will also need to enter their billing information and proof of incorporation document of the company they represent. After completion of the verification process CargoX will activate a newly created account.
3. The issuer creates the Smart Bill of Lading document

After receiving an order for shipment from the customer, the issuer creates a new Smart B/L document (either by inputting all the necessary B/L information into the CargoX dApp, or by uploading a scan of the actual paper B/L if it exists). To complete the Smart B/L the issuer needs all the necessary data usually found on Bill of Lading document, including all involved parties.
4. The issuer digitally signs the created Smart B/L document

After a Smart B/L is created, the issuer can still edit and change it (or delete it). At this moment the issuer is still the only one who sees this document. Once the B/L draft is double checked, the issuer digitally signs it. No relevant data can be changed after that. Seconds after the Smart B/L is signed it is logged onto the blockchain, and all involved parties can see it.
5. The issuer transfers the Smart B/L document to the shipper

After receiving a payment for the carriage, the issuer transfers the legal right of ownership to the shipper.
6. The shipper transfers the Smart B/L document to the consignee

After receiving the full payment from the consignee, the shipper transfers the legal right of ownership to the consignee, by transferring the Smart B/L to them.
7. The consignee proves the ownership of the goods, by transferring the Smart B/L document to the cargo release agent

After the ship’s arrival at the port of the destination, the release agent checks that there are no reasons to withhold release of the container. This is completed by the consignee transferring the legal right of ownership to the cargo release agent.
8. The cargo release agent releases the shipment

Once cargo deliver/release agent has ownership of the Smart B/L, they can finally release the cargo. Once customs are cleared, the cargo is delivered to the consignee. After the Smart B/L is completed, it is moved to archive.
Future pipeline of CargoX products

Q2 2018
Smart B/L MVP
The simultaneous public global launch and showcase of the Smart B/L MVP was demonstrated at the Logistics Congress 2018 in Slovenia and at the French Logistics meeting in Paris on 12 April 2018. In Q2 our first partners starting field testing the Smart B/L. In Q2 we also released our Business Plan Overview and a technical bluepaper detailing our open API and CargoX B/L eXchange protocol. In Q2 we will announce more details on the first trial run of the Smart B/L for international sea-freight shipment.

Q2-Q3 2018
Smart B/L dApp
Release of the Smart B/L dApp and API. First real world trial shipment using Smart B/L. The Smart B/L will be issued in Asia for a container shipment to Europe.

Q2-Q4 2018
First customers
Adoption of first NVOCCs, importers, and exporters.
Two derivatives of the Smart B/L are planned: Telex Release (for exchange of B/L between two parties); and Switch B/L (for global traders of B/Ls, especially interesting for commodities).

Q1-Q2 2019
Add-on features (Banks & Insurers)
Extending the protocol to accommodate L/C instrument equivalents, insurance agreements, Quality Control and other related services, integration with IoT vendors, etc.

Q3-Q4 2019
Integration of crypto-settlement instrument
Pending regulatory framework - we will upgrade the protocol to allow for on-chain settlement using "stable" tokenised currencies starting with MakerDAO’s DAI.
Partners

Want to be an active participant of the CargoX ecosystem? We would love to create a new generation of exciting smart contract applications for supply chain, logistics, and shipping with other forward-looking companies that are innovators in their field.

We are very proud of our active partnerships.

Maker DAO

Our very first partnership was formed only a few weeks after the successful completion of our crowdfunding. We are extremely proud that Maker DAO, one of the oldest and most respected teams from the inner circle of the Ethereum developer community, recognized the potential of CargoX.

MakerDAO will be contributing its rich development expertise in smart contract security and will share its core resources to help develop and audit CargoX smart contracts, while CargoX will implement Maker’s DAI - a stable cryptocurrency pegged to USD - as a primary goods/cargo payment mechanism within the Smart B/L and Smart L/C, enabling on-chain payment and crypto-settlement.

Milsped Group

By partnering with Milsped Group we have gained decades of real-world experience, as well as deep insight into logistics and supply chains from the perspective of large logistics provider.

Partnership with Milsped Group is helping CargoX establish technical and industry ties with regional and global companies that will allow the logistics software company to develop a solution that can be quickly onboarded using existing computer and smartphone technology, but that still delivers fast and secure transfer of critical trade documents. Companies will jointly test and evaluate CargoX’s blockchain-based Smart B/L solution.

Read the whole press release here:

Your company could be listed here!

Position yourself as an active participant and innovative technology leader. Explore the benefits of blockchain for your business, without up-front costs or big investments. Blockchain technology offers transformational powers to early adopters and brings new competitive advantages, as well as opportunities for adding value to global supply chains.

CargoX Smart B/L will help you boost your market presence by exploiting the power of smart contracts and blockchain. But this is only the beginning; this is your chance to make a strategic shift and actively shape the logistics future with us. We are offering several partnership opportunities – from pilot testing, integration services and business model evaluation, to future ecosystem development.

Contact us through https://cargox.io/partners-and-supporters to discuss this further.
Management team

Stefan Kukman
Founder & Chief Executive Officer
CEO and entrepreneur at 45HC.com, growth-oriented and highly focused CEO with a strong background in leading teams, product promotion and market research. He has 10 years of experience in this domain as well as excellent communication and leadership skills, which he gained with one of the biggest logistics providers Kuehne-Nagel.

Igor Jakomin, Ph. D.
Chief Operating Officer
More than 20 years of experience in transport, logistics and shipping industry. He was United Parcel Service Country (SI) and Regional Manager (SI, HR and BA), Managing Director of Samer Global Logistics, Supervisory Board member of Port of Koper and BTC Terminal, advisor to many established companies in Slovenia. His experience as a lecturer and assistant professor at various universities and academies is a further asset. For 3 years he served as State Secretary (Deputy Minister) at the Ministry of Transport of the Republic of Slovenia. He also holds a Ph.D. degree in transport and logistics.

Janez Kranjc, Ph.D.
Chief Technology Officer
Janez Kranjc is an experienced web developer and data-mining professional with a Ph.D. in computer science. His work includes developing distributed methods for knowledge discovery and continuous mining of dispersed data streams. His enthusiasm for blockchain technologies and professional experience has led him to become proficient in writing and auditing smart contracts on the Ethereum platform.

Jaka Mele
Chief Digital Officer
Jaka combines high-tech, finance and communication experience, and has been involved in several successful blockchain projects. He is well versed in and understands the paradigm-shifting implications of decentralisation and digitalisation. His background is IT, project management and product development. Before joining CargoX he was passionately rejuvenating the banking industry.

Primoz Mavsar
Chief Design Officer
Primoz specialises in graphic design, web development, UX, video editing, and project management. He earned his degree at the Faculty of Computer and Information Science in Ljubljana and has 16 years of experience in design and web development.
Igor Dragar  
*Chief Marketing Officer*

Although Igor graduated at the Faculty of Law in Ljubljana, he always felt more passionate towards the creative fields, such as branding, marketing and visual arts. For 10 years he was co-owner and art-director at Studio Pomarancha, a prominent marketing agency in Ljubljana. He was also working as a story-liner and screenwriter in television production before joining CargoX's team. In his spare time, he’s an avid disc golfer.

Rok Zibrat  
*Chief Administrative Officer*

Rok is a multi-purpose enabler, bringing together and improving various aspects of the business and organisational culture. His broad experience includes leadership roles in startups, departments of corporations and NGOs. He is no stranger to public speaking and education, product development and support management, online marketing and customer-centric thinking.

Patrick Vlacic, Ph. D.  
*Legal Advisor*

Patrick is a practicing lawyer with his own law office, working foremost on transport (maritime, air, rail and road) and insurance disputes, which he says uniquely qualifies him to serve as both associate professor at the Faculty of Maritime and Transportation Studies of the University of Ljubljana, as well as at the Faculty of Mechanical Engineering. He was the Minister of Transportation of the Republic of Slovenia (2008-2012).
Legal Disclaimer

The purpose of this document is to present CargoX and the CXO token to anyone interested in using CargoX products and solutions, making partnerships and/or holding CargoX tokens (CXO). This document is for information purposes only and it does not create any contractual relationship between CargoX and you as the recipient of this document. The sole purpose of this document is to provide relevant and reasonable information to potential token holders in order to determine whether to undertake a thorough analysis of CargoX with the intent of acquiring CXO tokens. An updated version of documentation may be published at a later date. CargoX makes no warranties or representation as to the successful development or implementation of the project, or achievement of any activities noted in this or other documents, and disclaims any warranties implied by law or otherwise.

Copyright (C) 2018 CargoX d.o.o. All Rights Reserved.
References

Incoterms

Token mechanics, utility tokens, value creation and token value capture, velocity of tokens
- https://medium.com/paratii/on-the-immaturity-of-tokenized-value-capture-mechanisms-1fde33f2bc8e
- https://medium.com/newtown-partners/velocity-of-tokens-26b313303b77
- https://multicoin.capital/2017/12/08/understanding-token-velocity
- https://news.earn.com/thoughts-on-tokens-436109aabcbe

Blockchain
- https://www.youtube.com/watch?v=ONyg9SbauMg
- https://www.youtube.com/watch?v=SME0KDVIUo
- https://www.youtube.com/watch?v=J-ab9was1p0
- https://www.youtube.com/watch?v=SSo_EIwHSd4
- https://www.youtube.com/watch?v=hYip_VuvBJ0

Bill of Lading

Ethereum development
- Plasma - https://plasma.io

3 Utilities of CXO token
- Number of CXO holders can be seen at https://etherscan.io/token/0xb6ee9668771a79be7967ee29a63d4184f8097143