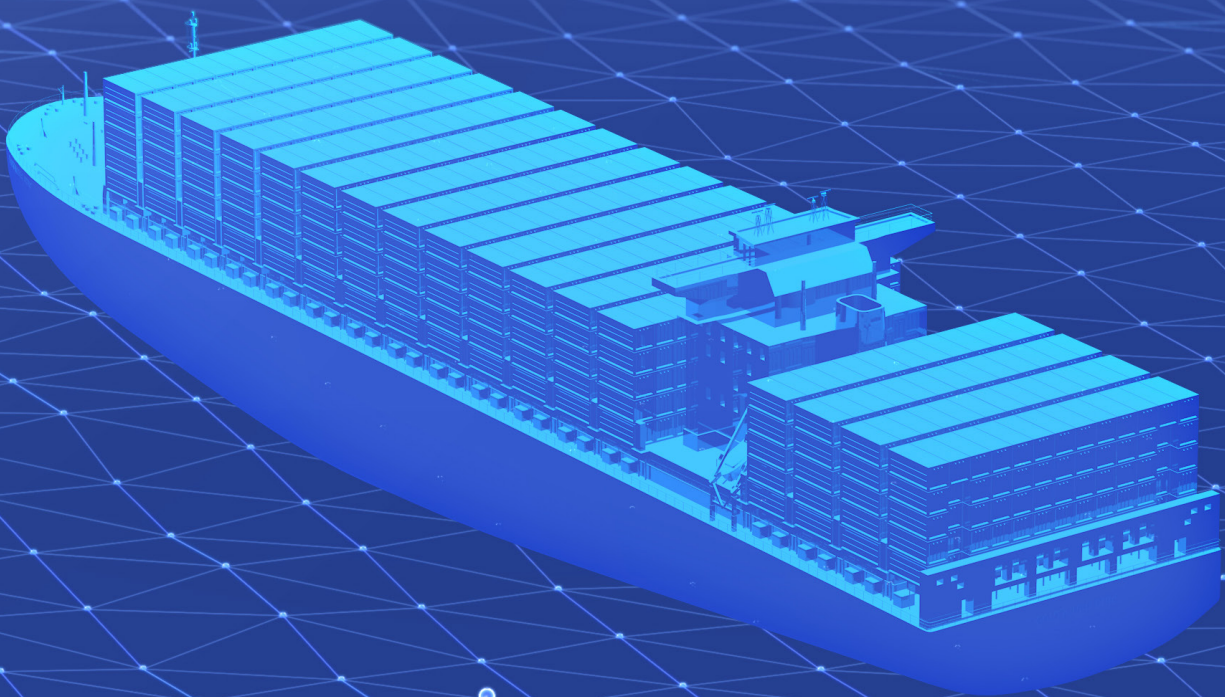Reshaping the Future of Global Trade with
World's First Blockchain Bill of Lading

CargoX

Whitepaper

Did you know?

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

And this industry still uses one of the world's oldest methods for issuing proof of ownership. Paper. Around 400,000 trees are felled 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 logistics.

Blockchain and Smart Contracts are made for this industry.

Table of Content

Frequently Used Terms

B/L	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.
Incoterms	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.
L/C	A Letter of Credit is a written commitment by a bank issued 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).
TEU	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.
Exporter	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.

Importer	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.
Shipper	Someone who provides or sends goods for shipment, by packaging, labelling, and arranging for transit, or who coordinates the transport of goods.
NVOCC	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 corporations to get goods from the manufacturer or producer to a market, customer or final point of distribution.
Carrier	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.
Consignee (Cnee)	In a contract of carriage, the consignee is the entity who is financially responsible (the buyer) for the receipt of a shipment. Generally, but not always, the consignee is the same as the receiver.
Blockchain	The blockchain is an incorruptible digital ledger of economic activities that can be programmed to record (financial, bookkeeping and process) transactions; it provides trust in direct peer-to-peer interactions. By design, blockchains are inherently resistant to modification of the data.
Smart contract	Smart (blockchain) contract is a distributed computer program that will execute when special conditions on the blockchain are met.

Smart B/L	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 L/C, insurance, etc.
CXO ERC20 token	CargoX Ethereum ERC20 utility token (ticker symbol CXO) will be used as a core part of our digitalised business model; it will allow partners to interact with Smart B/L Dapp. Tokens will be used for sending, archiving, changing ownership and also as payment solution for logistic services offered by selected logistic partners. ERC20 defines a common list of rules that any token based on Ethereum has to implement.
Permanent Encrypted Decentralised Data Storage	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. For permanent storage one of the existing decentralised storage services or protocols will be used. Currently, IPFS has been identified as the most suitable candidate, but evaluation of Sia and Storj is still ongoing. Encryption will be mandatory, as all documents and non-public metadata will always be encrypted. The chosen solution will offer a permanent, reliable and economic data storage appropriate for e-archiving, but will still allow deletion of documents after the legally defined archive age has been reached.
IPFS	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.

1 Abstract

CargoX will transform the global shipping industry by securing "Bill of Lading" documents using blockchain technology, thus providing a way for importers and exporters to exchange those documents digitally, securely and without counterfeit in an open environment.

CargoX aims to disrupt the container shipping industry through the creation of decentralised and open protocols, tools and utilities for the exchange of shipment ownership (Bill of Lading) documents in the logistics industry.

With Smart B/L we will change today's physical (paper) proof of ownership used for claiming cargo at the destination port with blockchain-assisted digital proof of ownership, making it more secure, instantly transferable, easier to archive and massively cheaper than the current (paper) solution.

CargoX will connect producers, importers, freight forwarders and other involved parties in a well-balanced ecosystem based on trust and frictionless interactions, providing tools for seemingless exchange of documents, saving them time and money while giving them a high level of security, transparency and traceability—the logistics industry's top three pain points and problems.

2 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 enormous complex system behind it that 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 man learned to float.

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

There are over 50,000 merchant ships trading internationally, transporting every kind of cargo. In 2015, for the first time in history, world seaborne trade volumes surpassed 10 billion tons. The world fleet is registered in over 150 nations, and manned by over a million seafarers of virtually every nationality.
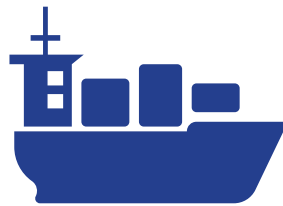
200
million TEU

50,000
merchant ships

10
billion tons trade volumes

Biggest Shipping Companies

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

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

Company	Ships
APM-Maersk 🇩🇰	636
MSC 🇨🇭	512
CMA CGM 🇫🇷	461
COSCO 🇨🇳	313
Hapag-Lloyd 🇩🇪	220
Evergreen Line 🇹🇼	194
PIL 🇸🇬	142
OOCL 🇭🇰	107
Hamburg Süd 🇩🇪	105
NYK Line 🇯🇵	100
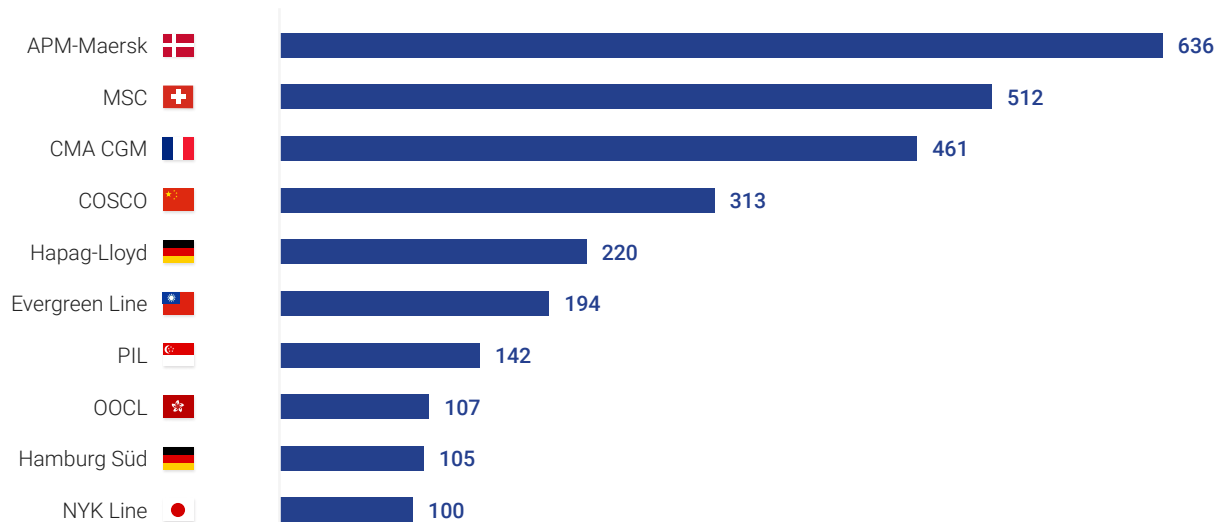
As of June 19, 2017
Source: Alphaliner

statista ⬢

Biggest Freight Forwarders

(TEU volume)

Company	TEU volume
Kuehne + Nagel Inc.	4,053,000
DHL Supply Chain	3,059,000
Sinotrans Ltd.	2,801,300
DB Schenker USA	1,952,600
Panalpina Inc.	1,488,500
DSV Air & Sea Ltd.	1,305,594
Expeditors International of Washington	1,044,116
Hellmann Worldwide Logistics	902,260
Bollore Logistics	844,000
Kerry Logistics Network	785,600
Damco International	744,000
Geodis	690,000
Ceva Logistics	681,600

Source: http://hub.controlpay.com/h/i/339086184-top-50-ocean-freight-forwarders

Freight Forwarder vs NVOCC

The Bill of Lading document interconnects several entities from world of logistics, but at its centre there are two main ones: Freight Forwarders and NVOCCs (Non-Vessel Operating Common Carrier). As many of the big shipping companies act as NVOCCs and freight forwarders in full or to some extent, in many aspects they are virtually synonymous, with the biggest difference between them being in how they act in relation to the cargo.

NVOCC is the only entity that issues a Bill of Lading

An NVOCC acts as the carrier of the cargo being sent. NVOCC is the only entity that issues a Bill of Lading. A Bill of Lading is also known as a contract of carriage and is a legal document that binds both parties to the terms agreed upon. 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 never issues a Bill of Lading

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, then arrange for another carrier to pick it up at the port. They also handle all the entailing paperwork and documentation for their customers. A freight forwarder never issues a Bill of Lading, and 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. It is beneficial for both parties to cooperate with one another.

	NVOCC	Freight Forwarder
Owns ships	No	No
Issues B/L	Yes	No
Can act as a carrier	Yes	No
Can order transport at carrier	Yes	Yes
Is liable for cargo damage/loss	Yes	No

The Problem

## An Introduction to Bill of Lading Documents

Every sea transfer in the world starts with the NVOCC (or carrier) issuing a Bill of Lading document that acknowledges the receipt of the cargo.

The 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 most important document in the shipping industry.

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

1. The carrier or NVOCC issues the Bill of Lading for the receipt of the goods and sends it to the exporter (producer) of the goods by express courier service.

3. The importer takes over the goods at the final destination by presenting the Bill of Lading to the carrier or NVOCC. The Bill of Lading is usually again sent by express courier service.

Exporter

Carrier
at origin
(Liner or NVOCC)

FF

Carrier
at destination
(Liner or NVOCC)

FF

Importer

B/L
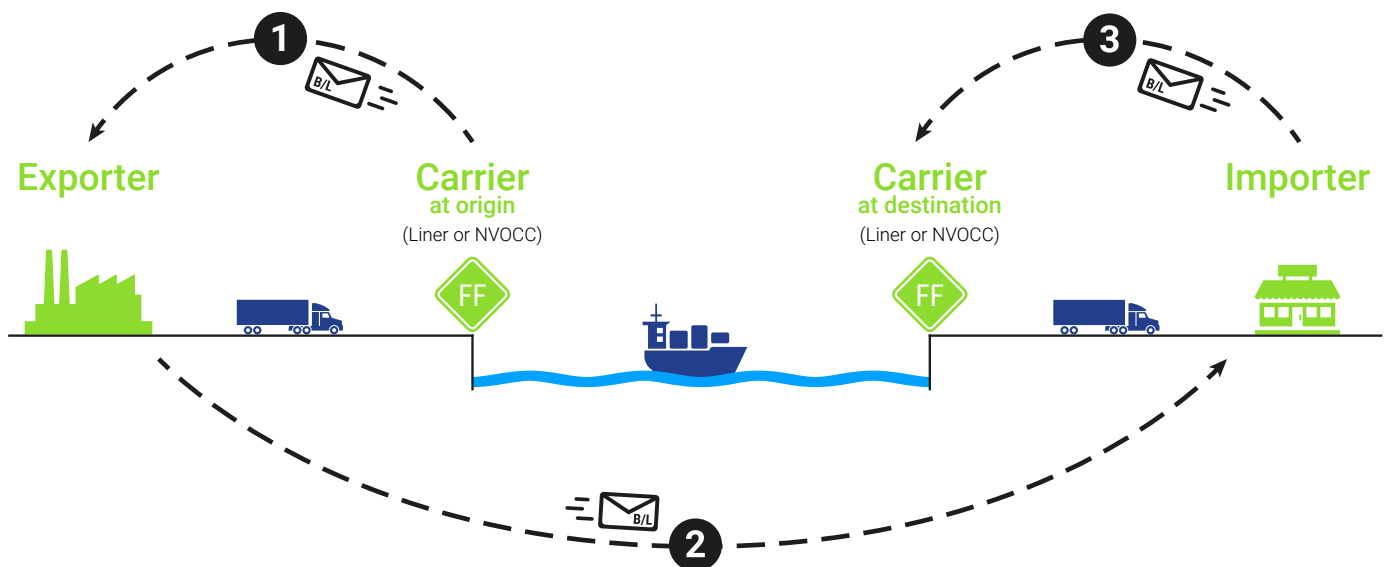
2. The exporter (after receiving the money for the goods from the importer) sends the Bill of Lading to the importer by express courier service.

The Bill of Ladings value is equal to the value of the cargo inside a container, on average it is worth around USD 60,000. Once the cargo is received and the Bill of Lading is issued by the carrier or NVOCC, this document has to be sent to the owner (shipper) of the cargo. Once payment for the cargo has been received, the owner (shipper) sends this original document to the buyer of the goods (Cnee or Consignee, or in case of L/C a bank) by express courier service (UPS, DHL, Fedex). Upon arrival of the vessel at the destination port the carrier or NVOCC asks the importer (buyer) to present the original Bill of Lading in order to release the shipment to the importer.

Pain points

1. **COST:** Today each Bill of Lading has to be printed out on paper. This paper (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 time and money consuming. Average express courier costs are above USD 100 for each Bill of Lading.

2. **LOST:** The original B/L can get lost or even stolen. This pain is mostly felt by importers as they need to officially declare the B/L lost, which results in weeks of waiting for a new one and because of that additional costs along the way arise–such as demurrage at the port of destination, late cargo arrival, and in some cases total factory downtime which can all result in a multi-million dollar loss.

3. **SLOW:** 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 a bank of the importer or the importer (3–5 days), and at the end the importer sends it to destination carrier office for container release (carrier, forwarder, agent) 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.

Why now?

There have been many attempts to introduce an electronic Bill of Lading, but none have garnered a wide 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.

With the invention of 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. Ethereum-based smart contracts allow interaction automatisation and additionally lower transaction costs.

Size of the market

One of the biggest freight forwarders 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!

Global trade paper B/L costs

USD 5 billion
Express Courier Service

USD 2 billion
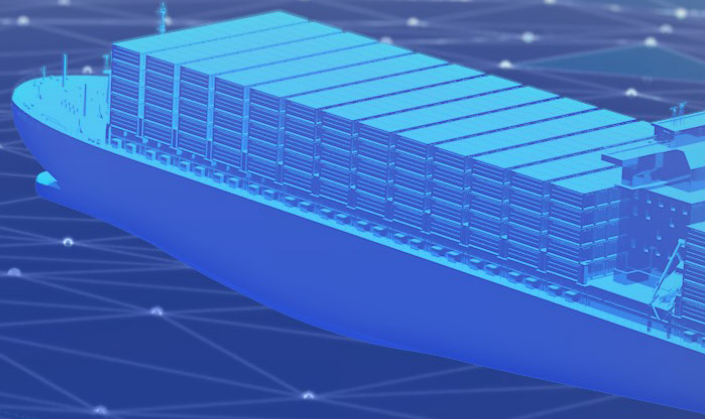Printing

400,000
Trees cut

750 million
Employees

+ storage

+ CO^2 emissions

CargoX
Solution

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?

After 8 years of everyday scrutiny in usage by millions of users with billions of 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 it since 2009. Today, blockchain technology is securing over USD 500 billion of value in over 1000 different cryptocurrencies.

It turns out that digitising the Bill of Lading document is the perfect application for the blockchain. No marketing buzzwords required – the use of blockchain solves it all. Document traveling speed goes off the chart, overall costs are decreased by over 90%, and native transparency and trackability ensure that lost or stolen documents are thing of a past.

4 CargoX Solution Overview

CargoX will create an open system based on Ethereum and encrypted permanent decentralised data storage which will enable the creation and exchange of Bill of Lading documents.

The following diagram illustrates the workflow between different parties in the CargoX system.
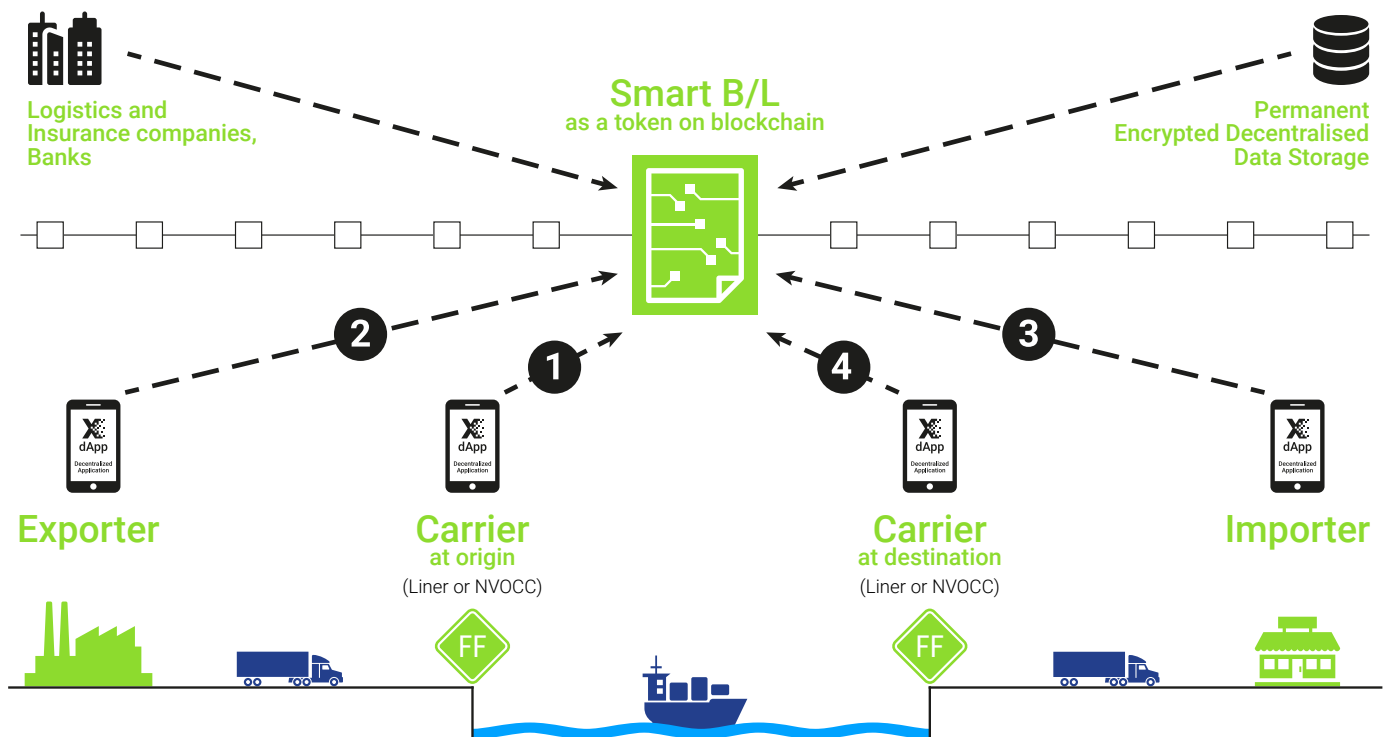
The blockchain-based Smart B/L works in a similar way to tokens. The user can create/transfer/claim its ownership.

1 At the origin the carrier uses our dApp to create a blockchain-assisted Smart B/L with the exporter's address and sends it as a token to the exporter.

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

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.

4 At the destination the carrier releases the goods to importer once importer proves ownership of the Smart B/L token.

All Global Trade sensitive information will be hidden from public view and only shown to the importer, the exporter and the issuer of the Smart B/L; special care will be given to properly secure all information about multiple business interactions between the same peers.

5 CargoX Ecosystem

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

- ✓ **A governing body** comprised of industry leaders that will be responsible for the adoption of the standard in the industry and legislature.

- ✓ **CargoX B/L eXchange protocol (B/L X)** for exchange of Bill of Lading (B/L) documents.

- ✓ **CXO token** that will serve as a protocol utility token and allow decentralised transfer of digital ownership claim and facilitate a payment method for logistics services.

- ✓ **Smart B/L dApp** is a web-based decentralised application allowing customers to interact with Smart B/L digital document.

- ✓ **Smart L/C dApp** will allow depositing of money in accordance with smart contract and will be released when the buyer receives the goods. Banks and current L/C procedure such as escrows and payment intermediaries will become obsolete.

- ✓ **Smart Booking Module**–integrated at external shipping platforms (such as 45HC.com, etc)

Utility of CXO Token

6

We will issue the CXO token that will be used as a core part of our digitalised business model; it will have multiple intrinsic utilities, such as: system access, payment for usage fees, gas for running Smart B/L contracts, usage incentives, bounty and reward mechanism, access and payment for advanced features (e.g. document archives, logistic and shipping services provided by partners on our platform, personalisation), etc.

CXO utility token is carefully structured in such a way as to empower our users, boost interactions with the CargoX system and facilitate usage of services provided by our partners. Using CXO tokens for incentivising usage and the CargoX service referral will give additional rise to network effects and hence facilitate better interactions.

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

- CXO tokens will be required to obtain access to the system and all core operations on the B/L eXchange protocol,

- additional CXO tokens will be needed to enable archiving and other advanced features of the CargoX system,

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

- CXO token will be a 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,

- 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 to our system.

CargoX B/L eXchange Protocol (B/L X)

The CargoX B/L X eXchange Protocol provides the following services:

- ☑ Creation and storage of timestamped B/L documents.
- ☑ Proof and transfer of ownership of B/L documents.
- ☑ Annexation of B/L documents.

The protocol connects the following parties:

- ☑ Carrier (typically an NVOCC) which acts as a B/L issuer and guarantor.
- ☑ Exporter (shipper).
- ☑ Importer (consignee).
- ☑ Banks, Insurance companies

In the protocol CargoX acts as the service provider that:

- ☑ Defines the protocol rules (by updating the contract).
- ☑ Approves carriers or NVOCCs as issuers on the B/L eXchange protocol.
- ☑ Governs the network in accordance with the best interests of all parties:
  - ◼ acts as the dispute intermediary
  - ◼ resolves unintended actions in cases of misuse (Smart B/L sent to the wrong address, etc.)
  - ◼ regulates the use of the protocol

The service provider collects CXO tokens as a reward for its services and is allowed to sell them on open markets.

The protocol enables creation, annexation and exchange of B/L documents between the three parties listed above.

IPFS will be used to store full B/L documents

Ethereum and encrypted decentralised storage will act as the underlying technologies, offering an open and non-exclusive access to the B/L X protocol, fostering an open industry ecosystem.

Ethereum B/L exchange contract will define the rules for valid exchange and annexation of B/L documents. Encrypted decentralised storage will be used to store full B/L documents and annexes which will simplify referencing in Ethereum contracts, provide adequate security and lower storage costs.

Creation and storage of timestamped B/L documents

B/L documents are formatted using an open B/L standard*. Once created they are stored in encrypted decentralised storage and referenced with a B/L hash number provided by the storage.

A B/L document is **valid** once it is stored in the decentralised storage subsystem and signed by a verified carrier, which acts as a B/L issuer.

A B/L document is **issued** when the hash and signature of the B/L are added to the B/L exchange contract on the Ethereum network or future subnetworks (as proposed in the Plasma: Scalable Autonomous Smart Contracts whitepaper, by Joseph Poon and Vitalik Buterin).

Only verified issuers can issue the signed B/L document on the B/L exchange contract.

* See: https://www.essdocs.com/solutions/cargodocs/docex/electronic-bills-of-lading

Proof of ownership and transfer of ownership of B/L documents

The B/L exchange contract tracks ownership of B/L documents. Ownership of the B/L document is implemented as a Ethereum smart contract and runs on the top of Ethereum blockchain.

At any time the ownership of a B/L document can be proved using the following scheme:

■ A challenge (random string) is created by the verifier.

- The owner of the document signs the random string using the Ethereum address that owns the B/L document and publishes the proof together with Ethereum address used to sign the challenge.

- The verifier checks that the signature is valid and that the Ethereum address used to generate the proof owns the B/L document by referencing the B/L exchange contract.

Proof of ownership can thus be implemented off the chain, making such transactions available free of charge.

Transfer of the ownership of B/L documents is implemented by use on the chain transaction which changes the owner of the B/L document. During the transfer of the B/L document the B/L exchange contract verifies that transferer of the B/L document is the owner and that the recipient's address is valid.

Annexation of B/L documents

Implementation of B/L document annexes is similar to implementation of B/L documents.

- A B/L document annex is **valid** once it is stored on the encrypted decentralised storage and signed by a verified party.

- A B/L document annex is **issued** when the hash and signature of the B/L is added to the B/L exchange contract on the Ethereum network.

An annex can be created by the issuer of the B/L document or owner of the B/L document.

The B/L contract takes care of linking annexes to original documents.

B/L exchange contract

The B/L exchange contract implements the services of the protocol.

At a minimum, the B/L contract implements the following functions:

Issue

This function issues and registers the signed B/L document to the B/L exchange contract. Only approved senders are allowed to perform this operation. CargoX takes care of managing the list of approved senders as set by governing rules and will be detailed in an announcement in Q2 2018.

Transfer

This function allows the parties to exchange a B/L contract, thus electronically exchanging ownership of the physical B/L document and rights pertaining to the holder of the B/L document. The B/L exchange contract tracks the ownership of the document. Only the current owner is allowed to call the transfer function.

Annex

This function allows the rightful party to annex the existing B/L document. Hash chaining is used in a similar way to how blocks in the blockchain reference the previous block.

Every call to the functions listed above will require CXO tokens that will be collected on the service provider's account. A special contract will govern the current rates of B/L eXchange contract services (function calls), similar to GAS cost in Ethereum.

8 CargoX Decentralised Application (CXDApp)

CargoX will provide the implementation of the protocol and an application that will allow end users to interact with the protocol in a user-friendly fashion.

Technically, the 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 approach makes it possible for any organisation to participate in the CargoX ecosystem and integrate the services provided by the B/L eXchange protocol. We will prepare standardised APIs and SDKs for seamless integration with B/L eXchange protocol. Additionally, we will incentivise the integration with existing information systems and end-user applications. As a consequence, a large pool of organisations with varying degrees of complexity will participate which, in turn, will expedite the adoption of the B/L eXchange protocol.

The decentralised application of the B/L eXchange protocol will not only serve as a full-featured, production-ready implementation, but will also be used as a reference implementation for future industry partners (see the roadmap).

The decentralised application will provide the following core functionalities:

For the carrier or NVOCC:

✅ Issuance of B/L documents.

✅ Listing and retrieval of issued B/L documents, along with their owners and process status.

✅ Issuance of verified B/L document holder addresses.

For the importer and exporter:

✅ 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.

✅ Arranging payment guarantees

CXDApp workflow

1.
The importer creates the transport order

The importer (after getting an offer for sea freight) makes a transport order to a carrier.

2.
The carrier creates the digitally signed Bill of Lading document

The carrier acquires all necessary data from the exporter and creates a draft of the Smart B/L in a Smart Contract app. All the parties involved are added to participate. Once the B/L draft is confirmed by all the parties, the carrier seals it with a digital fingerprint. No relevant data can be changed after that.

CXDApp

providing seamless and user-friendly interaction with the Smart B/L eXchange

3.
The carrier transfers the digitally signed Bill of Lading document to the exporter

After receiving a payment from the importer, the exporter transfers the legal right of ownership to the importer with his digital fingerprint.
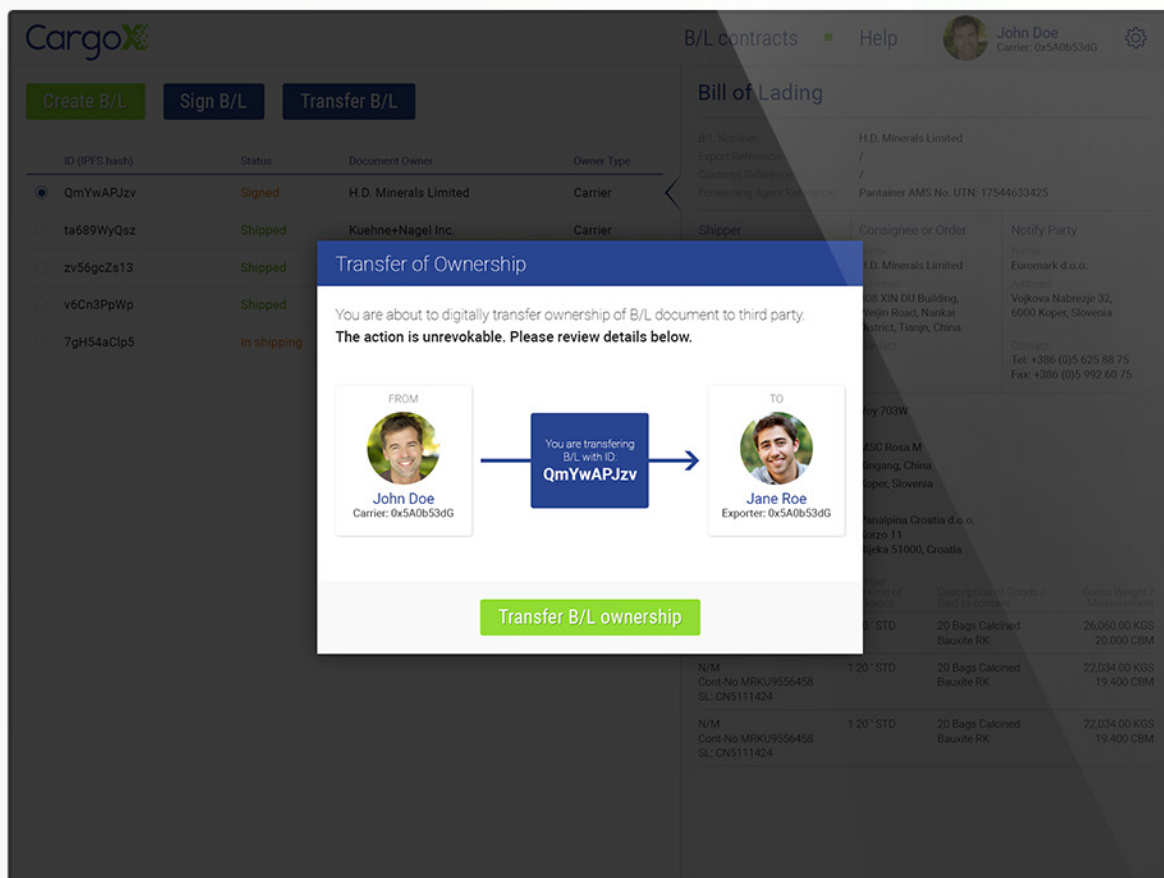
4.
The importer proves the ownership of the Bill of Lading document

After the cargo's arrival at the destination port, the carrier at destination checks that exporter has no reason to withhold release of the container. The cargo is delivered to the importer after customs clearance.

The Go To Market Approach

CargoX will push the adoption of CXO Ecosystem from multiple sides—NVOCCs, Importers and Exporters. All parties will benefit from using CargoX Smart B/L due to lower costs, higher security, high transparency, fraud resistance and irreversibility of cargo timestamped movements.

Additionally, we will incentivise the launch and the growth of the ecosystem by implementing an automated bounty rewarding mechanism based on active participation of end-users in ecosystem growth. 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 existing cooperation.

Up to 8% of CXO tokens

will be distributed to future partners for easier adoption on the market and for establishment and enhancement of the CargoX ecosystem. We will promote Smart B/L to the biggest logistics companies therefore adding value for customers, offering great benefits simultaneously to the biggest importers and exporters who choose Smart B/L as their first choice. Blockchain will allow us to fight counterfeits with greater precision and with wider range, bringing another benefit to big global brands.

The Business Model

Each Smart B/L creation event will cost an issuer (carrier or NVOCC) USD 10 or with 20% discount paid with CXO tokens, which is considerably less than the current cost of issuing (paper) B/L. With this amount CargoX will cover 3 transaction costs on the Ethereum network, the rest will be used by CargoX.io for operational costs/financing further development/growth and expansion of the CargoX Ecosystem. Registration and use of Smart B/L dApp will be free for importers and exporters, however in order to use various features of the platform, partners will need to hold certain amount of tokens on their account. The required amount of CXO tokens will depend on the size of the partner.

For on-boarding purposes we have reserved a number of CXO coins, which will be distributed to the first 100 logistics companies partnering with CargoX.

Benefits of using Smart B/L in contrast to Paper B/L

	Paper B/L	Smart B/L
B/L fee (USD)	from 35 - 100	10 or CXO amount with discount
Sending costs (USD)	average 100	0
Change of ownership	by sending original B/L	Instant, from dApp
Time in transit	5 - 10 days	Instant
Can be stolen	yes	no
Can be lost	yes	no
Archiving	expensive, paper storage	free for token holders
Cargo information (location, temperature,etc)	no	yes

The SWOT Analysis

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 Smart B/L on Blockchain.

Strengths:

- Decentralised network
- Resilient ecosystem
- User-friendly interface
- Highly experienced team
- Security and high-end cryptography

Weaknesses:

- Lack of development/marketing funding
- Weak media presence
- Smart B/L industry market unawareness
- Lack of reputation
- Lack of trust in new technology suppliers

Opportunities:

- Global Trade penetration
- Supply chain optimisation
- Integration with major logistics players
- Counterfeit recognition
- Costs savings
- Transparency and irreversibility of data
- Lack of open industry B/L standard
- Smart B/L can be extended and complemented with IoT integrations

Threats:

- Lack of blockchain knowledge among our users from logistics and trade industries
- Logistics industry is not known as a fast-changing environment
- Customers perception of B/L as a paper document
- Institutional adoption barriers

CargoX ICO (Initial Coin Offering)

CargoX CXO Token

CargoX token is fully ERC20 compliant non-mineable utility token with a fixed supply.

Symbol: **CXO**

Price: **0.0001 ETH**

(ratio for 1 ETH = 10,000 CXO)

The maximum number of CXO tokens will be calculated on 22 January 2018, based on the 7-day average ETH/USD exchange rate.

The number of generated CXO tokens will depend on the amount of ETH raised in Pre-crowdsale and Crowdsale.

Token Sale Details

Beginning of ICO: **23 January 2018**

The exact block number will be announced one week prior to the start of the ICO.

The project will be successfully crowdfunded if it raises a minimum of USD 1,500,000 (soft-cap). The upper limit and our target amount to raise is set at USD 7,000,000 (hard-cap). Both amounts will be calculated and expressed in ETH based on the ETH/USD exchange rate on the date the ICO starts.

Soft-cap:	Hard-cap:
USD 1,500,000	**USD 7,000,000**

The CXO Token Crowdsale will be open for 24 days, or until the hard cap is reached. The ICO crowdsale contract will issue CXO tokens instantly and users will get them in real time. Tokens will be unlocked 3 days after the official end of ICO.

Token Sale Discounts

Early backers will be rewarded with a discount. The discount rate will drop with every week, starting with 10% and ending with 0% on the last week of the ICO.

Pre-sale	**ICO crowdsale**			**ICO end**
Purchase until 22 January 2018 @ 15:00 CET	Starts on 23 January 2018 @ 15:00 CET			ICO ends on 15 February 2018 @ 15:00 CET
15%	**10%**	**7%**	**3%**	**0%**
	First 48h	**Next 7 days**	**Next 7 days**	**After that**
	From: 23 Jan @ 15:00 CET To: 25 Jan @ 15:00 CET	From: 25 Jan @ 15:00 CET To: 1 Feb @ 15:00 CET	From: 1 Feb @ 15:00 CET To: 8 Feb @ 15:00 CET	From: 8 Feb @ 15:00 CET To: 15 Feb @ 15:00 CET
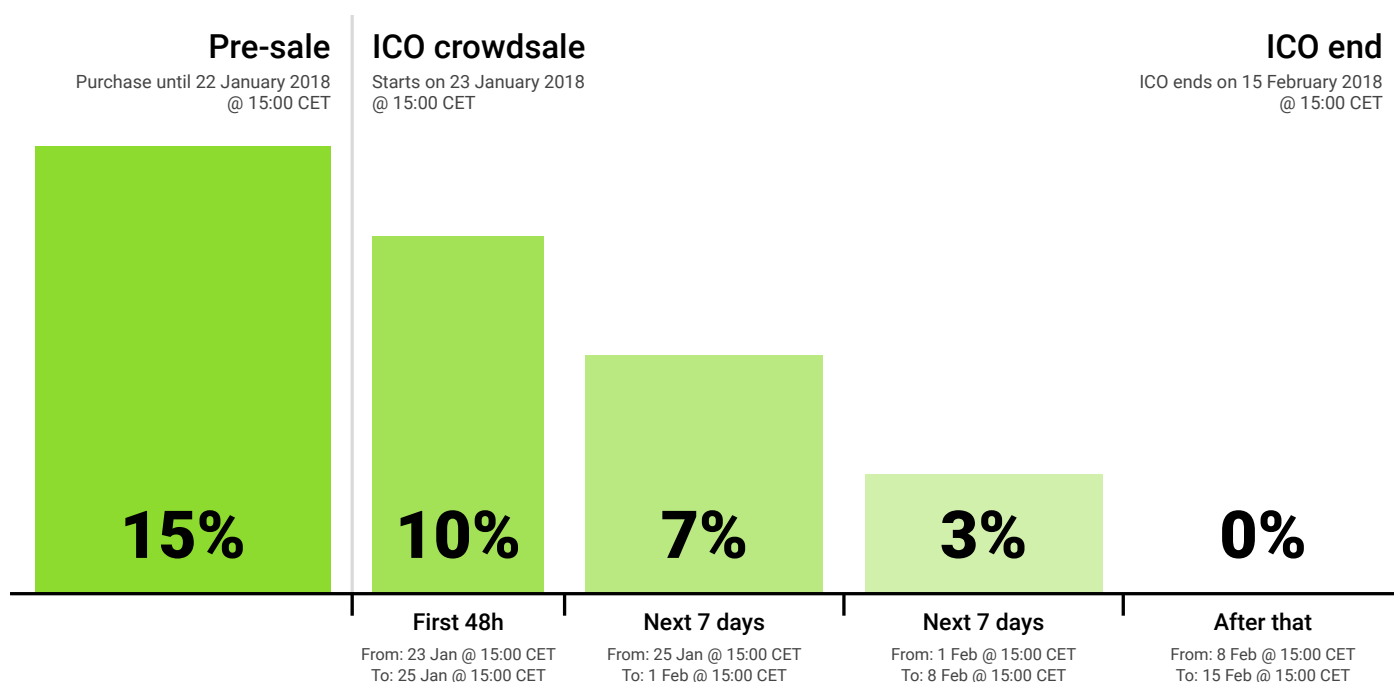
To prevent any unneeded obstacle on our business path, we are fully compliant with regulations and laws (as imperfect as they are for the blockchain-based crowdfunding projects). Therefore to participate in our pre- and crowdfunding you have to pass a mandatory KYC (Know Your Customer). How?

Participate in the crowdfunding

STEP 1

Visit https://cargox.io

STEP 2

Start KYC process
by entering your details and upload the required documents.

STEP 3

Participate in the crowdfunding
After your KYC has been successfully processed, your ETH address will be whitelisted and you will be able to participate in the crowdfunding.

Token Distribution

- 40% of tokens will be offered to contributors in the Pre-Crowdsale and Crowdsale.

- 25% of tokens will be reserved for future development. They will be locked for 12 months in smart contract.

- 15% of tokens will be distributed to the founders and the team that brought CargoX to life. They will be locked for 12 months in smart contract with quarterly cliffs.

- 10% of tokens will be distributed to our advisors and ambassadors for contributing with their know-how.

- 8% will be reserved for future partners, strategic partnerships and adoption acceleration incentives.

- 2% will go to the bug bounty pool

Future and Strategic partnerships **8%**

Advisors and ambassadors **10%**

Founders and team **15%**

Future development **25%**

2% Bug bounty pool

40% Contributors in Pre-Crowdsale and Crowdsale
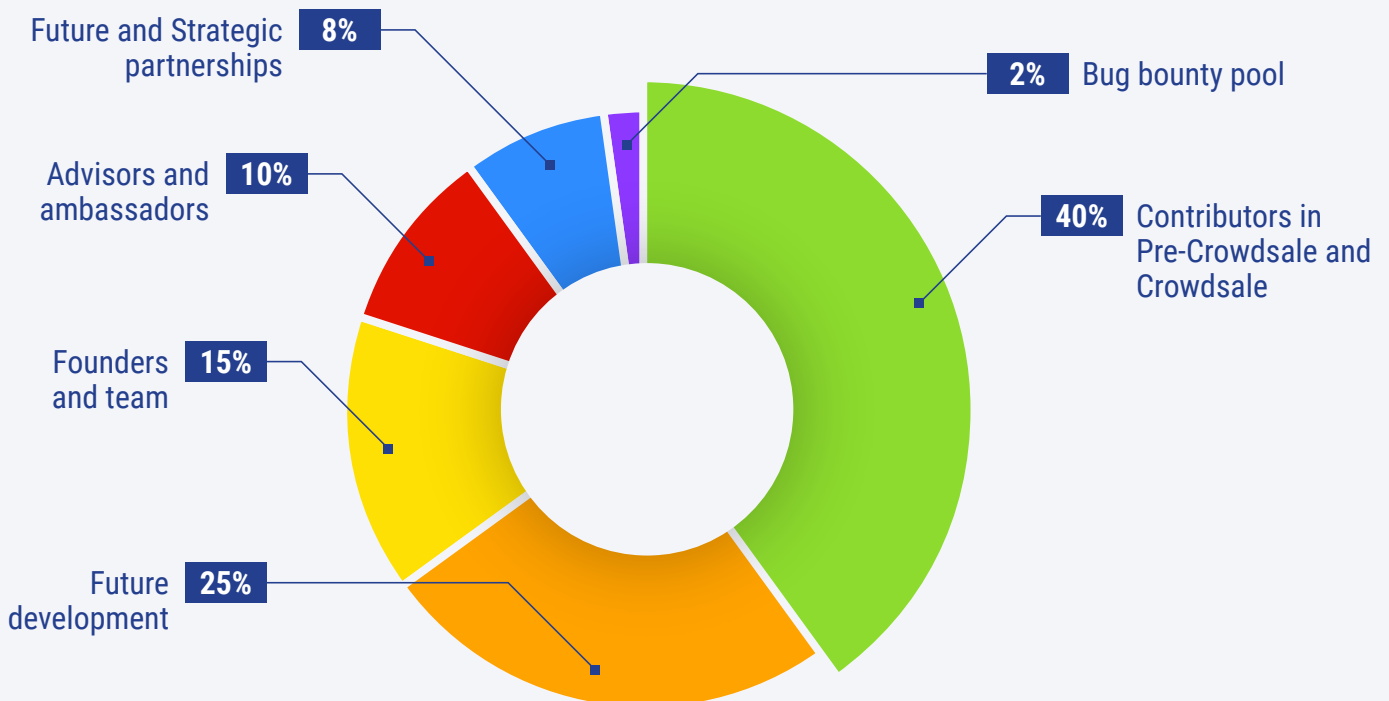
Funds Distribution

- 55% of funds raised will be used for Product CargoX Development

- 30% of funds raised will be used for Marketing, Sales and PR

- 5% of funds raised will be used for General and Administrative Expenses

- 5% of funds raised will be used for Legal and Compliance

- 5% of funds raised will be used for Security

Legal **5%**

5% Security and Compliance

General and Administrative expenses **5%**

55% Product CargoX Development

Marketing, Sales and PR **30%**
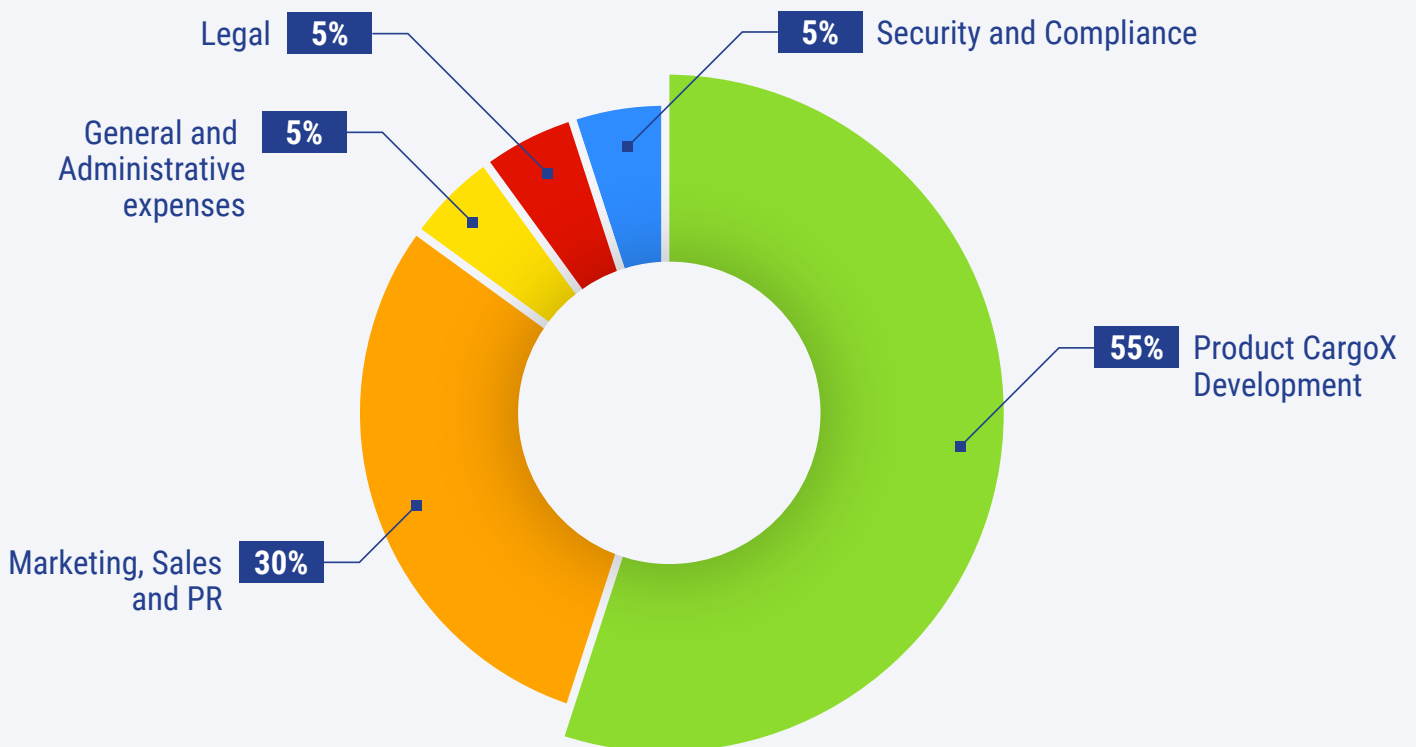
Benefits for Contributors and Early Adopters

CargoX has a simple-to-understand product that brings strong added value to its users and adopters. Using it, partners get a clear advantage that will help differentiate their own offerings from competitors'.

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

Blockchain is the perfect vehicle for B/L application, no marketing buzzwords needed. Our product is in final concept phase, and we believe it can be delivered to the market relatively quickly. Once deployed, it opens possibilities for functional upgrades and expansions, which will further enhance its value and broaden the user base.

Our team is complete, and our development force is already hard at work. We have strong support from leading industry players, and we are in several partnerships talks.

We have done our maths and consequently set the hard-cap at USD 7 million, which is one of the lowest in recent ICOs. We don't want to sit on millions of your money, we just want enough to launch our product and while doing so, make a world a bit better than before. Once our crowdfunding is fully complete, we will have enough funds for a 2-year runway, and all the money needed for aggressive marketing that will facilitate rapid adoption.

We believe that with strong current and future partners, CXO token will be used beyond the CargoX ecosystem. Our mission 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. 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 of CargoX will increase, and we believe this will reflect in the price of the CXO token as well.

Only one question remains: do you recognise this opportunity and will you act on it?

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Roadmap and Milestones

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October 2015

Brainstorming and Market Research

A team of experts from IT and logistics created a concept of a transparent, user-friendly and very fast container shipping platform.

The idea for **45HC was born.**

March 2016

45HC released

45HC was released in March 2016. For the first time, customers have instant shipping rates through several providers. From all over the world to their warehouse, without any hidden fees or excuses.

Accepted to **ABC Accelerator** and gets **first small Angel investment.**

August 2016

New outfit for 45HC

The 45HC.com is completed with all MVP features. New responsive design raises market attention and attracts many new customers. 45HC becomes known as **the skyscanner for cargo transport.**

December 2016

EUR 160,000 Investment

After a great year, we finally sign our **100k+ angel investment.** This year we win **PODIM's Pitch challenge competition**, we are the winners of the **EBAN Winter University competition** in Zagreb, and we also become **Websi champions.**

July 2017

Growth

The team now has **10 members** and our growth was over **600% on container volume** on last year (whole year).

August 2017

CargoX.io was born

Out of the desire to simplify the paper-plagued world of Bill of Lading documents, **CargoX is born.**

CargoX and 45HC are complementary products that benefit from synergies.

November 2017

CargoX.io Pre-ICO preparation

The team is built, we **attracted several key advisors.** Raising additional funds through the ICO will help us implement our vision of the future of global trade.

February 2018

CargoX.io ICO

The ICO will run in February and allow everyone to buy CXO tokens.

Q1 2018

First Crypto Cargo Payment option

CargoX CXO token will be **added to 45HC.com as a payment method.** Paying for services with CXO tokens will give importers additional discount.

Q1 2018

Release of B/L eXchange protocol

We will be releasing our **B/L eXchange protocol** and announcing the first **beta trial Smart B/L sea-freight shipment.**

Q2 2018

Smart B/L dApp

Release of Smart B/L eXchange dApp. We have already signed an NVOCC (non-vessel operating common carrier - one of top 10 in the world) for the test trial. The Smart B/L will be issued in Asia for a container shipment from Asia to Europe.

Q2-Q4 2018

First customers

Adoption of first NVOCCs, importers and exporters.

Q1-Q2 2019

Add-on features (Banks & Insurers) ...

Extending the protocol to accommodate L/C instrument equivalents, insurance agreements ...

Q3-Q4 2019

CXO as a settlement instrument

Upgrade of the protocol to allow for on-chain settlement, first by using CXO token, immediately followed by selected "stable" tokenised currencies. Potential candidates include MakerDAO's DAI and DigixDAO's DXO.

Team

Stefan Kukman
Founder & CEO

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.

Primoz Kopac
COO

Entrepreneur, owner of Plenum IT, a partner at KraftPal technologies and 45HC.com. Primoz core expertise and passion is a transformation of new, innovative or emerging concepts into viable companies. Primož has extensive experience in web project management, branding, online marketing, business planning, start-ups in EU and USA. He is also crypto and blockchain believer, Alpha Extra Exhibitor at Dublin 2015 Web summit, PODIM 2016 winner, finalist of Best Early Stage Startup CESA 2016, Central European Startup Award.

Gasper Setinc
Product Manager

A product manager with a deep technical background and a passion for making complex things simple and intuitive. Co-founder & CPO of Voxior, a company that connects home devices with smart homes. He is both exceptionally intelligent as well as empathetic to the needs of the business side of the company.
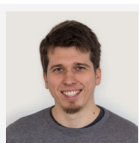
Janez Kranjc, Ph.D.
Blockchain Developer

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.

Primoz Mavsar
Designer

Primoz specialises in graphic design, web development, UX, video editing and project management. He earned his diploma at the Faculty of Computer and Information Science in Ljubljana and has 16 years of experience in design and web development. He is currently designer and web developer at Zemanta (an Outbrain company) and is also a partner and CCO of KraftPal Technologies.

Jure Tomc, MBA
Business Developer

Startup mentor, coach, JT Business Development business owner, technology transfer specialist, NLP trainer and coach. He has great experience in leading companies and teams in B2B, B2C, wholesale, retail and web/mobile sales, domestically and internationally. Jure is well connected as a business director in China, the US, Hong Kong and the EU.

Jaka Mele
Marketing & PR

Jaka combines high-tech, finance and communication experience, and has been involved in several successful blockchain crowdfunding projects. He is well versed in and understands the paradigm-shifting implications of decentralisation. Currently, he is passionately rejuvenating the banking industry, but wondering how all those packages ordered online actually travel the world to reach his house …

Una Softic
Community Manager

Business development and innovation consultant with over 10 years of professional experience in technology solutions. Starting her career at General Motors and Intel in Europe and the USA, she specialized in automotive, AI and fintech. Una is based in Tokyo, and her recent blockchain-focused consulting projects/clients include Nikkei, ZILLA, and naturally, CargoX.

Peter Selekar
Digital Advertising

Peter is CEO and Owner of Dinetix.com, a performance-oriented digital marketing agency and has more than 14 years of experience in the digital business world. He is responsible for B2B/B2C lead generation or eCommerce strategy implementation for companies like Sberbank, Barclays, Honda, Sony and many others. His passion is growth hacking with digital advertising optimization, user experience testing, and big data mining.
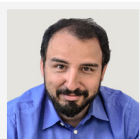
Peter Merc, Ph.D.
Legal (Lemur Legal)

Peter is a co-founder of the Lemur Legal company and also the lead coordinator of the Blockchain Think Tank, initiated by the Ministry of Public Affairs of Slovenia. Lemur Legal is the leading legal expert for startups, angel investors, accelerators and IT companies. They cooperate with government, regulators and chambers of commerce. Their services link real and parallel "crypto" economy. They also participate in various projects in the field of blockchain, personal data protection and fintech.

Advisors

Damjan Kralj

As a member of the BTC Company Management Board, one of the leading commercial property development companies in the region, Mr Damjan Kralj, with over 10 years of top-level managerial experience, also adds value to the creation of long-term business relationships in the logistics business unit. Additionally, he is one of the key supporters within the BTC's top management team of the globally positioned start-up initiative, an ABC accelerator group with accelerators in BTC City Ljubljana, Munich, and Silicon Valley. Mr Kralj holds a Master of Science degree from the Faculty of Economics at the University of Ljubljana.

Otmar Zorn, Ph.D.

Doctor of Science with extensive knowledge of finance, accounting, HR and crisis management. He is Board Chairman at Solvera Lynx d.o.o., owner and director of Zorn Plus d.o.o. and he carried out an immense conversion of the Varsi d.o.o. and Iskra Zaščite d.o.o. companies. He is also Past District Governor of Rotary International Slovenia and plays an important role on our advisory board.

Stefan Haizinger

Mr Haizinger is extremely experienced and innovative in the field of logistics, especially sea freight. He has more than 20 years of relevant experience, worked at DHL, COSCO and in Kuehne+Nagel as National Manager for FCL export shipments. Currently responsible for development and digitalisation of sea-freight logistics at Berger Logistik GmbH, he is also responsible for Red Bull Business.

Peter Kern

Mr Kern has more than 20 years of relevant logistics experience, most of that in various positions at the world's largest container shipping company—MAERSK Line. His last position was Managing Director at Maersk Adria, where he was responsible for development of the Adriatic region. He is also a big blockchain believer, seeing opportunities from which customers and logistics companies will benefit.

Yu Fan

Mr Fan is a seasoned investor holding management positions in several investment companies. He has been engaged in equity investment for more than 10 years, participating in venture capital and PE. His investment experience includes aerospace, energy, high-end equipment manufacturing, electronic information technology, bio medicine, agriculture, education and FMCG.

Julien Coustaury

Julien has over 20 years of experience as CEO in manufacturing and services and has a Master's degree in telecoms engineering. Sharing his knowledge in over 80 countries, he has been part of $1.7 bn of purchases, sales and financing of transactions. As an investor in deep tech software, cryptocurrencies and arbitrage platforms he is also part of the founding team of Double Recall and is an entrepreneur-in-residence at the ABC Accelerator. Julien was also advisor and investor in the Viberate project, one of the most successful ICOs in the world.

Jure Poljsak, MBA

An experienced executive in the area of risk management, corporate finance and M&A. He currently serves as Director of Credit Risk at Abanka and holds several supervisory board positions in the financial industry. He is keen on new technologies including blockchain and has become a digitalisation enthusiast by successfully managing various digitalisation projects in different industries. He is also the co-founder of PricePilot, an advanced service booking platform. He earned his MBA from Cotrugli Business School.
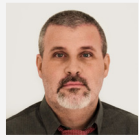
Vjeran Ortynski

Vjeran has 14 years of relevant logistics experience, most of that time on various regional managerial positions at the world's largest freight forwarding companies like DHL, Kuehne+Nagel. Deep knowledge of seafreight transportation from LCL, FCL, to Project Cargo and Pharma cold chain. Vjeran's last position was Seafreight Manager of Adriatic Cluster within Kuehne+Nagel. He is aware of advantages in digitalisation and blockchain technologies and believe that is the next step to take in intermodal shipping.

14 Legal Disclaimer

The purpose of this White Paper is to present CargoX and CXO token to potential token holders in connection with the proposed crowdsale. This White Paper is for information purposes only and it does not create any contractual relationship between CargoX and you as the recipient of this White Paper. The sole purpose of this White Paper is to provide relevant and reasonable information to potential token holders in order for potential token holders to determine whether to undertake a thorough analysis of CargoX with the intent of acquiring CXO token. An updated version of the White Paper may be published on a date yet to be determined and announced by CargoX. CargoX makes no warranties or representation as to the successful development or implementation of the project, or achievement of any activities noted in the White Paper, and disclaims any warranties implied by law or otherwise.