

# International Trade Data Sharing Platform using Blockchain Technology



# Blockchain Will Change the World

Blockchain and distributed ledger technology (DLT) will bring our social infrastructure to a whole new level. With these technologies, we can build a data sharing platform with which original data is shared and verified by multiple systems, not by a single company or government, providing an extremely high level of transparency and tamper resistance. The original data becomes accessible to anyone at any time—creating a “ubiquitous original.” With these possibilities, we will create a totally new social infrastructure.



## Our Leadership

NTT DATA has expertise in blockchain technology and solid relationships with numerous business leaders.

More than 200 members

from 20 countries

participating in the Blockchain CoE

(As of May 2018)



### Blockchain CoE (Center of Excellence)

NTT DATA established the Blockchain CoE (Center of Excellence) in 2017. The CoE works to gather all use cases and commercialization analyses from overseas affiliates in order to utilize them as a whole group. We are working with affiliates in more than 20 countries to explore applications of blockchain technology in a wide range of fields such as finance, manufacturing, and the public sector.

### Our Experience in Social Infrastructure

NTT DATA has a long history of building and operating social infrastructure in public and financial sectors such as trade, banking, and insurance. With our wealth of blockchain knowledge and rich experiences in building social infrastructure, we are creating new social mechanisms.

### Internationally Recognized Excellence

In the *Blockchain Services PEAK Matrix Assessment 2019*, published by market research firm Everest Group, NTT DATA was acclaimed as a leader in blockchain technology.

“...Leaders have invested ahead of the blockchain adoption curve. They demonstrate the blockchain vision of not just cost savings and process optimization, but also making real the top-line impact of blockchain by showcasing thought leadership on new business and revenue models...”

# Digitalizing the World of Trade

Running the trade business is highly complicated, involving many different types of participants exchanging a variety of documents across borders. It was considered impossible to digitalize with existing technologies. Blockchain will make this possible and bring new value to all users.

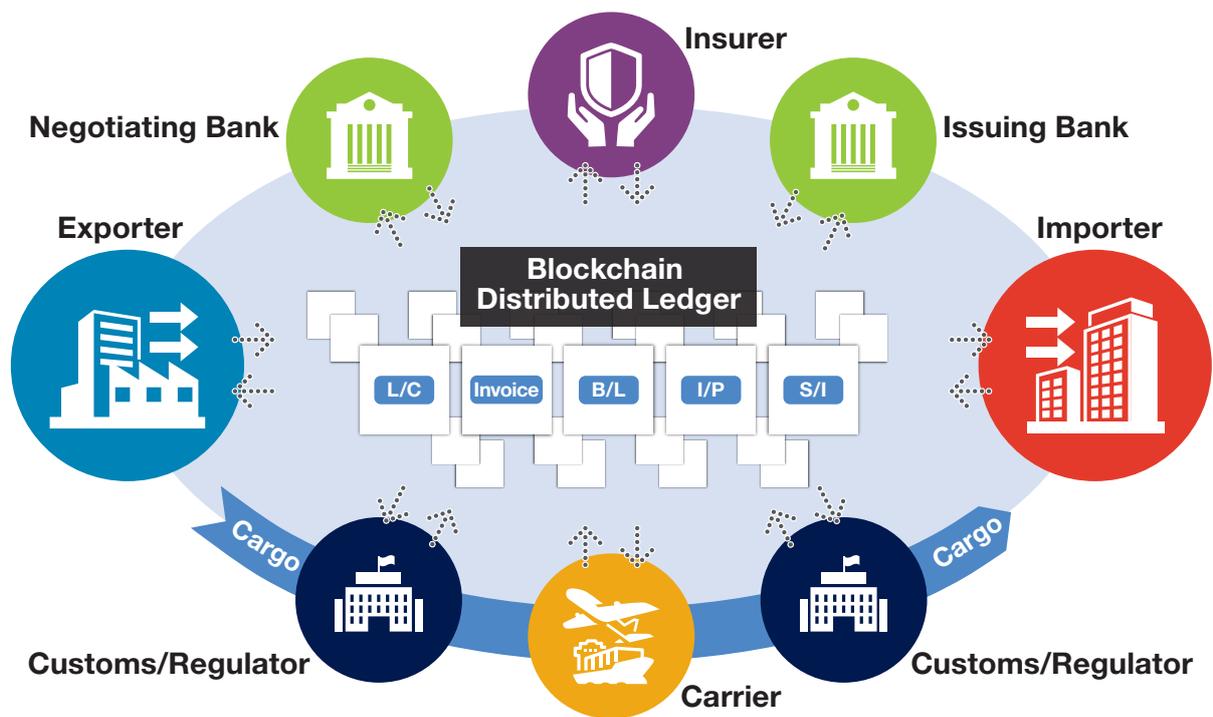
Within the trade industry, information is transferred among numerous institutions such as cargo owners, shipping companies, logistics companies, banks, insurance companies, and customs and import/export authorities. It can appear like a worldwide “telephone game” where data gets pushed through an intricate web of networks across the globe. With information fragmented among systems, constant and inefficient data

transcription, and risks due to document tampering, so many problems remain unsolved in the industry.

With blockchain technology, we aim to build a platform with which all participants can share information and drastically streamline all the vast and complicated processes. We will revolutionize the trade business in all aspects: security, efficiency, traceability, transparency, and collaboration.

## Pain Points

- Fragmented information among systems makes it difficult to grasp the status of a transaction
- Administrative procedures such as cross-checking and data transcription take up too much time
- Documents can be tampered with and falsified, putting everyone at risk



## Solutions 1

**Add transparency and traceability to data**

By storing evidenced documents in a distributed ledger, we ensure the authenticity of digitized documents. In addition, each party can track information and conduct their operations smoothly.

## Solutions 2

**Share and manage information among all participants**

We allow trade information to be directly shared and managed, allowing for single data input which reduces the need for the cross-checking of documents and mitigates the risk of human errors in data transcription. We release operators from the massive volume of processes and radically improve efficiency.

## Solutions 3

**Prevent tampering with irreversible data**

We prevent the tampering of evidenced documents by making data irreversible and indelible. This ensures transactions are safe and secure, and minimizes the risk of disputes and fraud.

# STARTING IN 2019

## An Open and Global Trade Ecosystem

Just as the internet connected the world and changed how we live, digital technologies such as DLT are pushing the trade industry—with its long history of established practices—into a new era. Together with everyone, NTT DATA is creating an open and global trade ecosystem.

### From Paper to Smart Data

Massive volumes of trade documents reflect the buildup of antiquated processes in today's industry. Mailing and archiving documents, inputting and checking data in internal systems, communicating with regulators for official approval—all these processes are still being done with paper documents (even with PDFs, the process stays much the same).

We digitize trade documents into “smart data” which can smoothly and automatically trigger transactions across industry systems and enable high-level data applications such as anti-money laundering (AML) measures.

### Even More Authenticity than Paper

Throughout its history, trade has been supported by a chain of trust based on paper documents. Despite numerous attempts to replace paper with digital data, people were not able to replace the authenticity that paper provides.

Now, thanks to DLT, all participants can share unfalsifiable unique pieces of information on a global scale. We will build a platform for digital original data which is safe and secure both from a legal and technical perspective.

### Increasing Responsiveness

The global logistics network is huge and complex, demanding speed and sensitivity to meet ever-changing situations on a real-time basis. It is a difficult task to obtain the necessary papers from everyone and prepare valid documents in a timely manner when things are not confirmed until the last minute.

We will provide a platform which guarantees that anybody can obtain correct information from any part of the world, supporting tough operations and making logistics smooth and more responsive.

### New Business Opportunities

Our new platform digitizes all documents into smart data and visualizes the whole trade process. With possibilities such as trade finance optimized by accurate and real-time information, AML measures, and data traceability, the platform brings new business opportunities never previously imagined.

Our platform is not just about innovative functions; it is also designed to attract new business partners who will help create a rich new trade ecosystem.





## Exporters

- Reduce manual operations, cross-checking, and loss/theft/tampering risk
- Improve data accuracy
- Cut lead time and mailing costs
- Prevent B/L crises
- Reduce demurrage
- Get traceable, real-time shipment statuses



## Importers

- Simplify L/C applications
- Improve data accuracy
- Reduce lead time and loss/theft/tampering risk
- Prevent B/L crises
- Reduce demurrage
- Get real-time shipment statuses



## Carriers

- Simplify B/L and SWB preparation
- Improve data accuracy
- Cut lead time and mailing costs
- Reduce loss/theft/tampering risk

# The Benefits of the Trade Ecosystem



## Banks

- Simple & accurate L/C issuance and D/B negotiation
- Cut lead time and mailing costs
- Reduce loss/theft/tampering risk
- Introduce new financial services



## Insurers

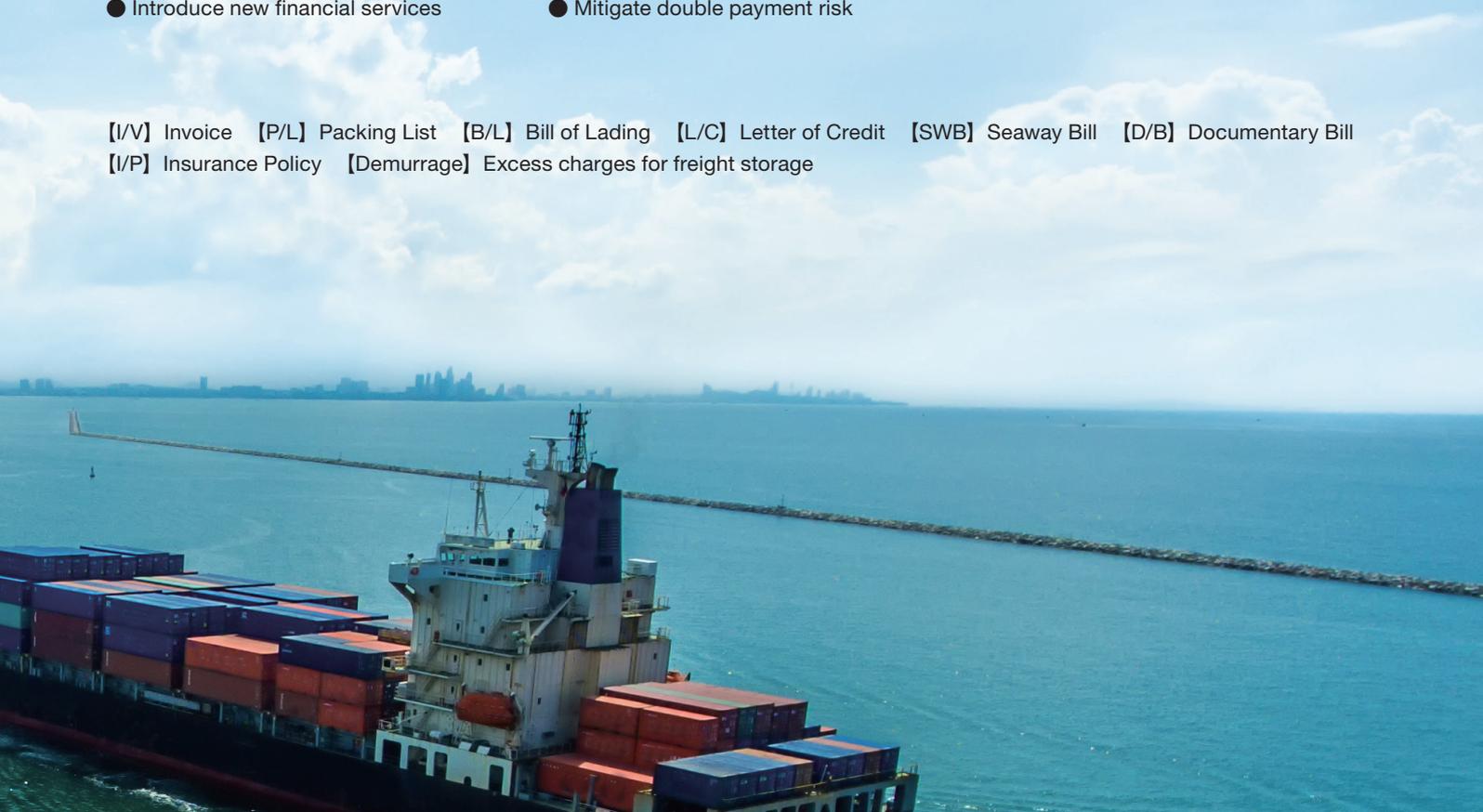
- Simplify document preparation and increase data accuracy
- Cut lead time and mailing costs
- Reduce loss/theft/tampering risk
- Mitigate double payment risk



## Customs/ Regulators

- Transparency with originality & authenticity of data
- Streamline administrative processes by eliminating data errors

[I/V] Invoice [P/L] Packing List [B/L] Bill of Lading [L/C] Letter of Credit [SWB] Seaway Bill [D/B] Documentary Bill  
 [I/P] Insurance Policy [Demurrage] Excess charges for freight storage





# Creating a Trade Operations Ecosystem

To build a trade operations ecosystem, NTT DATA has been working on the societal implementation of blockchain technology at the cross-industrial Consortium. Since its establishment, the Consortium has achieved significant results in areas such as operations, technology, and regulation.

## Achievements of the Trade Consortium

To realize an optimized, sophisticated trade ecosystem, NTT DATA launched the Consortium in August 2017 with leading Japanese companies engaged in trade operations. The Consortium has been working on building a trade information platform using blockchain technology.

In order to implement a trade information platform on a societal scale, the platform has to solve the common problems of all parties involved. The technology must attain credibility as a social infrastructure and reach compliance with relevant legal and regulatory authorities.

To address these issues, the Consortium set up working groups focusing on operational flow, technology, and laws/regulations. After carefully examining each domain, the Consortium achieved the following.

- Established a cross-industrial operational flow
- Developed a standard data format for trade documents
- Registered and shared trade documents on a blockchain platform; verified access control and other technical matters
- Conducted a trade operation proof of concept (PoC) using a trade data sharing platform; demonstrated operational cost reductions across all kinds of processes (by up to 60%)
- Developed an application programming interface (API) for registering and sharing trade documents on the blockchain platform
- Examined compliance with the Model Law on Electronic Transferable Records (MLETR) established by the United Nations Commission on International Trade Law (UNCITRAL)
- Summarized legal issues regarding the digitization of trade documents
- Conducted surveys on relevant global trends and collaborated with overseas institutions

## R&D Project on Smooth Trade Operations Using Blockchain Technology

In July 2018, NTT DATA was chosen as a member of a NEDO\* project to build a platform for a new industry model which leverages IoT.

During the project, we built a trade data sharing system and conducted a PoC at three major ports—Tokyo (Oi), Shimizu, and Hakata—which export containers to Asia. The PoC resulted in all the participants in trade operations (including those which had not digitized their data) increasing their productivity and cutting export lead time. We also tested an application programming interface (API) and a simple interface to facilitate smooth system linkage. With these results, we are working with the public sector toward the societal implementation of a trade data sharing system which will streamline trade operations on a global supply chain.

## Scope of the Trial Project



\*New Energy and Industrial Technology Development Organization (governed by the Ministry of Economy, Trade and Industry)

# Towards a Global Platform

NTT DATA has contributed to economic growth in Japan and East Asia with years of experience in building customs clearance and trade systems. We already have done a series of PoCs outside Japan to spread our trade data sharing platform throughout the world.



\*Nippon Automated Cargo and Port Consolidated System

## Our Contribution and Experience in the Trade Industry

NACCS,\* the Japanese customs clearance and national single-window system, is a mission-critical system for Business to Government (BtoG) transactions in Japan's international logistics industry, and is internationally recognized as an extremely high-level IT system. Used at major Japanese airports and seaports, it is a one-stop system which handles not only customs clearance processing but also trade procedures with government agencies 24 hours a day, 365 days a year.

Since the NACCS service started 40 years ago, NTT DATA has offered system integration and maintenance services as the sole prime contractor. Based on this solid experience, we are currently supporting emerging countries in digitalizing their customs clearing procedures, which would promote their economic growth and competitive power in the global market.

NTT DATA launched VNACCS in Vietnam in April 2014 and MACCS in Myanmar in November 2016. These systems created a significant impact on the trading industries of their respective countries as the digitization of documents helped dramatically reduce the customs clearing time.

## PoC in Singapore

In 2017, NTT DATA conducted a PoC in Singapore to connect its trade sharing platform NTP (Networked Trade Platform) with its Japanese counterpart.

Singapore promotes its digital economy as part of their "Smart Nation" initiative and they are striving to bring NTP into widespread use nationwide.

In the PoC, we connected our trade data sharing platform to the NTP's API and demonstrated that safety, efficiency, and transparency were all increased in cross-border transactions. Now, we are accelerating efforts to start full-scale commercial services between the two countries.



## PoC in Thailand

In 2018, NTT DATA conducted a PoC in Thailand with local service providers and the companies and banks of Japan and Thailand in order to digitalize trade procedures between the two countries.

As there are many Japanese businesses in Thailand and the trade volume with Japan is large, the digitalization of the end-to-end procedures will have a significant impact on their trade business.

In the PoC, we demonstrated the benefits to users and identified system-related issues by seamlessly connecting the local trade procedure services to our trade data sharing platform.





## International Trade Data Sharing Platform using Blockchain Technology

### Participating companies



ITOCHU Corporation



K LINE



K LINE

Marubeni



MITSUI & CO.



Mitsui O.S.K. Lines



Mitsui Sumitomo Insurance



Mizuho Bank



MUFG Bank



日本通運  
NIPPON EXPRESS



NYK LINE  
NIPPON YUSEN KAISHA



ONE  
OCEAN NETWORK EXPRESS



Sojitz Corporation



Sompo Japan Nipponkoa



Sumitomo Corporation



SUMITOMO MITSUI  
BANKING CORPORATION



Tokio Marine & Nichido Fire  
Insurance Co., Ltd.



TOYOTA TSUSHO CORPORATION

(In Alphabetical order | Based on information as of March 2019)

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