Contributions to Blockchains’ Use in Trade

United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT)

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UN/CEFACT Blockchain Projects

1) Blockchain Whitepaper project
   • Project description link: https://uncefact.unece.org/display/uncefactpublic/Blockchain+White+Paper
   • Launched May 2017, 82 experts participated with representatives from all major regions of the world
   • Status: 3 Outputs completed, 1 more to come

2) Cross border Inter-ledger Exchange for Preferential Certificates of Origin (CoO) using Blockchain
   • Project description link: https://uncefact.unece.org/display/uncefactpublic/Cross+border+Inter-ledger+exchange+for+Preferential+CoO+using+Blockchain
   • Status: Work well advanced
1) Organic Cotton Traceability
Proof-of-Concept project

- Project description link:
A gap analysis of technical aspects of blockchain and its relation to UN/CEFACT deliverables

Published as ECE/TRADE/C/CEFACT/2019/8, available online at:
Technical Applications of Blockchain to UN/CEFACT Deliverables

Table of Contents

1 Introduction
2 Purpose and Scope
3 Related Technologies
4 Risks and Opportunities
5 Putting It All in Context
6 Suggested Way Forward for UN/CEFACT

Annex 1 – Making It Real with a Hypothetical Example
Annex 2 – Glossary
An introduction to blockchain technology for trade policy makers

Overview of Blockchain for Trade

Table of Contents

1. An Introduction to Blockchain and Trade Facilitation
2. What is Blockchain and What are the different types of Blockchains?
   2.1 History and Background
   2.2 Blockchain: How It Works
   2.3 Blockchain Types [Public, Permissioned/Private and Inter-ledger Transactions]
   2.4 Smart Contracts, Oracles and Using the Internet of Things with Blockchain
   2.5 When to Use Blockchains And When Not To

Annex Use Case Template
Blockchain Whitepaper Project
Deliverable 3

Blockchain in Trade Facilitation: Sectoral Challenges and Examples

A business-case / process-oriented information paper on how Blockchain technology could be used to facilitate trade related business processes

Blockchain in Trade Facilitation: Sectoral Challenges and Examples

Contents

Section I  Data security and regulatory issues on blockchain based distributed ledgers
Section II  Supply chain transparency
Section III  Maritime trade
Section IV  Road transport
Section V  Agricultural, fisheries and food trade
Section VI  Energy trade
Section VII  Tourism
Section VIII  Music and arts
Section IX  Blockchain supporting the United Nations Sustainable Development Goals (SDGs)
Annexes (pages 100-129) Use Cases
Block chain White paper Project Remaining Deliverable 4

- Sectors being finalized for first quarter 2020: Finance, Healthcare and Government Services

- Some additional use cases
Cross border Inter-ledger Exchange for Preferential Certificates of Origin (CoO) Using Blockchain Project

Will define how blockchain could be used to create a platform that facilitates the exchange of digital CoOs + related documents

AND

• How existing UN/CEFACT deliverables could be used by such a platform

• Possible changes to existing UN/CEFACT deliverables, or new deliverables needed to support the creation of such a platform

• Key issues to consider when creating, administering and using such a platform
Cross border Inter-ledger Exchange for Preferential Certificates of Origin (CoO) Using Blockchain Project

Project deliverables

• Business Requirements Specifications (BRS)/Requirements specifications mapping (RSM) based on the UN/CEFACT Buy-Ship-Pay Reference Data Model

• Guidance material on the exchange of digital certificates of origin and invoice declarations of origin over a cross-border distributed ledger platform

• Reference implementation of the cross-border inter-ledger platform
Cross border Inter-ledger Exchange for Preferential Certificates of Origin (CoO) Using Blockchain Project

Results to date (1 of 3)

Australia, Canada, India and Singapore have actively contributed to the development of the specifications. Australia and Singapore have built a prototype implementation.

For specifications finalized to date, including the data model, see

https://edi3.org/specs/edi3-regulatory/develop/certificates/#data-model
Cross border Inter-ledger Exchange for Preferential Certificates of Origin (CoO) Using Blockchain Project

Results to date (2 of 3) Conclusions so far

- The UN/CEFACT Buy-Ship-Pay Reference Data Model was sufficient for modelling all structured data - except just one element (the origin criteria).

- The receiving regulator does not need much of the structured data for goods clearance. They only need to know that an accredited certifier (identified by the issuing country regulator) has verified that the shipment (identified via a Unique Consignment Reference) meets the required origin criteria.

This can be achieved with just a signed web token that points to the supporting document (the Certificate of Origin) which could even be a pdf. This provides an easy on-ramp (first-level implementation) because implementers don’t need to support the structured data model.
Cross border Inter-ledger Exchange for Preferential Certificates of Origin (CoO) Using Blockchain Project

**Results to date (3 of 3) Other observations**

- In the proof of concept technical prototype, a blockchain is used as a:
  - Distributed messaging channel where both authorities always have the CoO status
  - Time-stamping public notary – allowing any party to verify a document’s authenticity

- There is an Australian proof of technology at [https://trustbridge.github.io/](https://trustbridge.github.io/) and a Singapore proof of technology at [https://github.com/TradeTrust](https://github.com/TradeTrust) These two will be merged into a single UN/CEFACT Inter-Government Ledger Specification - the first draft being for end of 2019

- The Australian implementation is likely to go from proof of technology to business proof of concept for the CoO and other G2G exchanges with Singapore and other countries during 2020.
Organic Cotton Traceability – Proof of Concept Project

- Proof the possibility of increased connectivity and cost-efficiency based upon the use of blockchain technology for retailers, brands and manufacturers along the cotton value chain.
- Demonstrate the capacity of companies operating in the cotton value chain to take risk-informed decisions and use a set of internationally agreed traceability and sustainability standards.
Organic Cotton Traceability – Proof of Concept Project

Key project activities

- Definition of the value chain and data model
- Definition of the technology model and the traceability systems for the physical assets
- Analysis of the legal aspects (e.g. GDPR)
- **System development**: definition of data to be stored on- or/and off-chain, development of smart contracts, access concept to third party data bases, API and Web development
- **Parallel testing of blockchain modules** developed, integration test for partner certification and necessary KPI’s stored on blockchain (off – and on-chain), supply chain testing from end to end (seed to product)
- **Going live** with real data entry and testing of the application in project pilot countries (e.g. Egypt for seeds, farming, ginning and spinning, Italy and Switzerland and different countries in the value chain)

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<th>Sustainable &amp; Digital Solutions</th>
<th>A Cotton Supply Chain model and players (Egyptian cotton example)</th>
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And What More?

UN/CEFACT has existing work on semantic data standards and business process standards which could be used to support Blockchain interoperability.

See the UN/CEFACT White Paper on technical applications of Blockchain to UN/CEFACT deliverables.
Thank you

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