WTO Global Trade and Blockchain Forum

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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



Projects

- 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: <u>https://uncefact.unece.org/display/uncefactpublic/Cross+border+Inter-ledger+exchange+for+Preferential+CoO+using+Blockchain</u>
 - Status: Work well advanced

UN/CEFACT Blockchain Projects

1) Organic Cotton Traceability Proof-of-Concept project



• Project description link:

https://www.unece.org/tradewelcome/outreach-and-support-for-tradefacilitation/traceability-for-sustainable-value-chains-textile-and-leathersector.html

With support of





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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: http://www.unece.org/fileadmin/DAM/cefact/GuidanceMaterials/WhitePaper Blockchain_TechApplication.pdf



Technical Applications of Blockchain to UN/CEFACT Deliverables

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- 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



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An introduction to blockchain technology for trade policy makers

Published as ECE/TRADE/C/CEFACT/2019/9, available online at: http://www.unece.org/fileadmin/DAM/cefact/GuidanceMaterials/WhitePaper Blockchain.pdf



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Overview of Blockchain for Trade



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- 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
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 - 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

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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

Published as ECE/TRADE/C/CEFACT/2019/INF.3, available online at: http://www.unece.org/fileadmin/DAM/cefact/cf_plenary/2019_plenary/CEF ACT_2019_INF03.pdf

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Blockchain in Trade Facilitation: Sectoral Challenges and Examples

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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

Blockchain Whitepaper Project Remaining Deliverable 4



- Sectors being finalized for first quarter
 2020: Finance, Healthcare and Government
 Services
 - Some additional use cases

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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



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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



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



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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



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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 <u>https://trustbridge.github.io/</u> and a Singapore proof of technology at <u>https://github.com/TradeTrust</u> 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



Vith support of	
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	European Commission

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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 offchain, 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)





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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