

# WTO Research Workshop on BLOCKCHAIN

Blockchain and International Trade:  
Opportunities and Challenges

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**UN / CEFACT**



# UN/CEFACT Work on Blockchain

- White Paper on Standards
  - Considering relationships with current standards
  - Studying what new standards are necessary
- White Paper on Trade Facilitation Processes
  - Presenting 31 case studies in 10 Industry sectors
  - Presenting the functionalities blockchain offers that can't be achieved by other means
- Both papers are being finalized and prepared for final approval and publication

# Blockchain opportunities

- Blockchain has the potential to deliver significant improvements to trade and electronic business transactions because :
  - Immutable and verifiable transactions recorded in a blockchain can allow the elimination of paper in areas where today it is still required;
  - Automated (and immediate) reconciliation algorithms can facilitate faster payments
  - The tracing of digital assets through 100s or 1000s of transactions can support the tracking of sensitive goods and digital rights (for example IPR)
  - Immutable “original” electronic certificates, licenses and declarations can be linked with goods through digital twins in order to facilitate regulatory procedures.



# Blockchain opportunities

- The most valuable Blockchain applications for trade are based on Smart Contracts within a secure environment.
- Smart contracts usually require that blockchains process **external information**, from the **IoT** or other “**oracles**”
- For example, if a sensor inside a container indicates that its temperature has exceeded a permitted level, a smart contract could send a request for an inspection or trigger an insurance payment.



# Benefits of UN/CEFACT Standards

- Blockchain implementations can benefit from existing UN/CEFACT standards
  - Semantics standards such as Core Component Library (CCL)
  - Controlled vocabulary
  - Complex data structures e.g. EDI Messages
  - Extensible Marked-up Language Naming & Design Rules (XML NDR)
  - Business Exchange models in multiple areas (Transport, Logistics, Commercial, Finance ...)
  - Modelling methodologies and standards
    - (Business Requirement Specifications and Requirement Specification Mappings)
- All deliverables at <https://unece.org/cefact/>

# Blockchain and the SDGs

- Some Blockchain implementations can be used to support SDGs for example:
  - The establishment of identities
  - Tracking information linked to identities
  - The distribution of resources
  - Tracing goods and their content/origin
- Briefing note on Blockchain for the United Nations Sustainable Development Goals
  - [http://www.unece.org/fileadmin/DAM/cefact/cf\\_plenary/2018\\_plenary/ECE\\_TRADE\\_C\\_CEFAC\\_T\\_2018\\_25\\_E.pdf](http://www.unece.org/fileadmin/DAM/cefact/cf_plenary/2018_plenary/ECE_TRADE_C_CEFAC_T_2018_25_E.pdf)

# Blockchain challenges

- Cannot reasonably expect that all exchanges in a single operation be centralized on a same blockchain
- Issues of interoperability on several levels
  - Semantics
  - Syntax
  - Trust
- Scalability

# Blockchain challenges

Not all Blockchains and DLTs are equal, they vary in:

- **Vulnerability** (to hacking and other system failures)
- **Robustness** (how well they handle problems such as flawed code or being hacked)
- **Cost** (transaction cost, sometimes referred to as «gas»)
- **Speed and ability to scale up** (to large transaction volumes)
- **Degree of Privacy** (no anonymity vs pseudo anonymity vs total anonymity)



# Blockchain challenges

- Use of this technology has an implied computational cost
  - Distributed ledger (duplication of data on multiple platforms)
  - Implementation of authentication technology (Digital signature/Public Key Infrastructure signatures)
  - Implementation of hash technology
  - Current implementations are energy – and computing power - intensive
- May create a barrier
  - For developing/transitioning economies
  - For MSMEs
- May force investment in non-core aspects of an economic operator's business

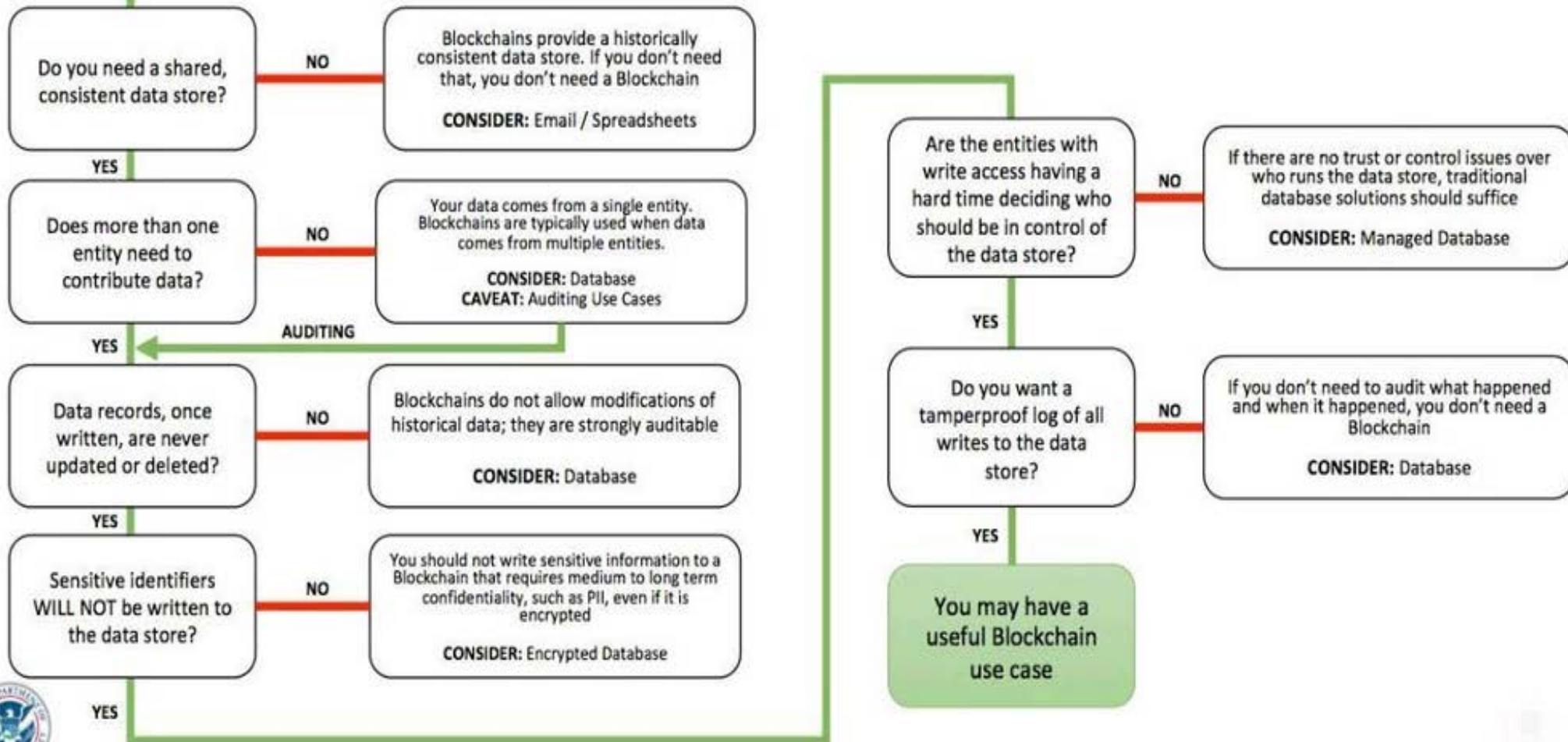
# Blockchain challenges

- The chosen method of authentication should be “as reliable as was appropriate for the purpose for which the data message was generated or communicated, in the light of all the circumstances, including any relevant agreement.”
- Blockchain is a very high level of reliability and not all data transactions require the highest level of reliability

UN/CEFACT Recommendation 14 (2014), paragraph 37.

Article 7.1, UNCITRAL “Model Law on Electronic Commerce with Guide to Enactment 1996 with additional article 5 bis as adopted in 1998” United Nations, New York, 1999, p.5-6.

# Blockchain – when to use





# More information on UN/CEFACT

All UNECE and UN/CEFACT Recommendations, codes, standards and publications are available for free on our website at:

- [www.unece.org/](http://www.unece.org/)
- [www.unece.org/trade](http://www.unece.org/trade)
- [www.unece.org/cefact/](http://www.unece.org/cefact/)
- [tfig.unece.org](http://tfig.unece.org)

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# Upcoming events of UN/CEFACT

- **Revision of Recommendation 16 (UN/LOCODE) project meeting**
  - 3-4 December 2018, Geneva, Switzerland
- **Team of Specialist of Sustainable Fisheries**
  - 31 Jan.-1 Feb. 2019, Geneva, Switzerland
- **UN/CEFACT 33rd Forum**
  - 1-5 April 2019, Geneva, Switzerland
- **UN/CEFACT 24th Plenary**
  - 7-8 April 2019, Geneva, Switzerland

Thank you

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