UN/CEFACT BLOCKCHAIN MINI-CONFERENCE
4 OCTOBER 2017
PROCESS AND DATA MODELLING USING BLOCKCHAIN
MOTIVATION
CONTRIBUTION TO UN/CEFACT BLOCKCHAIN WHITEPAPER

• Exploratory work.

• Blockchain Revolution vs. Evolution.

• Full impact of blockchain may take 10-15 years to really be understood.

• How can blockchain augment existing business processes.

• Focus on core blockchain value proposition of shared, immutable version of the truth.
Currently implemented
CROSS-INDUSTRY INVOICE (BRS)

SCENARIO 1: BLOCKCHAIN AS “NOTARY” SERVICE

Invoice data written to blockchain, signed by Supplier. Potentially unrelated to message or document delivery.

Transaction (Document) is stored as plain text, hash, or encrypted text written onto the blockchain. Actor (supplier/customer) electronic signatures authenticate the transaction. Provides Proof of existence of some document at some time. Shared state or version of the truth. e.g. Factom, OpenTimeStamps
CROSS-INDUSTRY INVOICE (BRS)

SCENARIO 1.5: BLOCKCHAIN AS "NOTARY" SERVICE, PAIRED WITH MESSAGE DELIVERY

Invoice data written to blockchain, signed by Supplier.
Encrypted document is retrievable by its hash.
Blockchain is closely tied to message delivery.

Transaction message hash is stored on the blockchain.
Actor (supplier/customer) electronic signatures authenticate the transaction.
Provides Proof of existence of some document at some time.
Shared state or version of the truth.
"Content Addressable Storage" (ex. IPFS, StorJ) to deliver the document/message.
SCENARIO 2: BLOCKCHAIN AS BUSINESS TRANSACTION LAYER

- Business Process logic encoded as a Smart Contract.
- Finite State Automaton (transition rules).
- Delegates decisions off chain (human decision makers) or encodes rules for decision making. Message hash stored as data. Message content private.
- Automated decisions would require message to be stored as native Smart Contract data. Implies permissioned blockchain.
- Roles defined, transactions signed.
ANATOMY OF A SMART CONTRACT

A LIMITED TRIAL IMPLEMENTATION UNDER DEVELOPMENT

- Ethereum/Solidity
- Hyper ledger implementation in design stage.
- This code initializes the contract with defined customer and supplier roles.
- Messages are stored for auditability.
- Design permits separate contracts for customer and supplier that encode decision logic.
- Should messages between parties be stored in native Smart Contract variables?