

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

UNECE-UN/CEFACT work on Blockchain

eB-MoU Webinar on e-business and Blockchain

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**UNECE – UN/CEFACT**

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

## Objectives

Simple, transparent and effective processes for global business;  
Efficient and automated exchange of information

## Key Tools

- Global trade facilitation recommendations
- eBusiness standards
- Guidelines
- Libraries and Directories

## Means

Public-Private Partnership  
– over 1000 experts;  
Meet virtually practically every weeks

## Semantic Hub for Standardization

Buy

Ship

Pay

### Commercial Procedures

- Establish sales contract
- Order goods
- Advise on delivery
- Request payment

### Transport Procedures

- Establish transport contract
- Collect, transport and deliver goods
- Provide waybills, Goods receipts, etc.

### Regulatory Procedures


- Obtain im/export licenses etc.
- Provide customs declarations
- Provide cargo declarations
- Apply security measures
- Clear goods

### Financial Procedures

- Provide credit rating
- Insurance
- Execute payment
- Issue statements

# Blockchain – Standards at the United Nations

- Cross-border exchanges using blockchain require a supra-national level of consensus which the UN can help establish
  - Need to convene governments to agree
  - Establish mutual recognition
  - Minimum standards
- Building upon five decades of trade standardization
  - Comprehensive and stable data model covering the entire supply chain
  - Robust standards built through public-private partnership

The background of the slide features a dark blue, almost black, gradient. In the center, a glowing blue globe is depicted, showing continents and oceans. Overlaid on the globe is a complex network of white lines and dots, resembling a digital or blockchain network. A human hand, with fingers slightly spread, is positioned at the bottom of the frame, reaching upwards towards the glowing globe. The overall aesthetic is high-tech and futuristic.

# UNECE – UN/CEFACT work on distributed ledger technology / blockchain





# Blockchain – some challenges

- Not all blockchains are equal. They can vary in:
  - Vulnerability, robustness, cost, speed and ability to scale up, degree of privacy
- Cannot reasonably expect all exchanges use a same blockchain solution. Interoperability issues:
  - Semantics, syntax, trust
- Implied cost of the standard may in fact create new barriers to trade
- 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



# Deliverables related to blockchain at UN/CEFACT

- [UNECE Recommendation 14](#) on Authentication of Trade Documents
- [White Paper](#) Overview of Blockchain for Trade
- [White Paper](#) on Technical Application of Blockchain to UN/CEFACT Deliverables
- [Briefing note](#) on Blockchain for SDG





# Transfer of MLETR-compliant titles

- UNCITRAL Model Law on Electronic Transferable Records
  - Using the Negotiable Maritime Bill of Lading as an example
- Problem with electronisation of transferable documents
  - A transferable document or instrument entitles holder to claim delivery of goods or payment of sum of money.
  - Copy is identical to the 'original' → multiple claims founded on identical electronic records
  - Hence use of ETRs would require support of legal rules recognising the electronic equivalent of a singular paper-based original, and relating to their use



# Transfer of MLETR-compliant titles

- Principles of MLETR
  - Functional equivalence, Technology neutrality, Non-discrimination
- Aspects of the MLETR
  - “The ETR” as functional equivalent of unique original,
  - “Exclusive Control” as functional equivalent possession,
  - Integrity, signature, endorsement, change of medium
- Ways in which blockchain allows these to be addressed
  - Tokens / token owner, verifiability, confidentiality, data protection
  - International Trade – Low barriers to entry, dynamic
- Importance of UN/CEFACT standards and semantics





# Cross border inter-ledger exchange for Pref CoO

- Using blockchain technology to build a platform that facilitates the exchange of digital preferential certificates of origin
  - [Intergovernmental Ledger \(IGL\)](#)
  - Genuinely scalable and decentralised model
- Issuing high integrity digital trade documents
  - Authenticated, provenance traced, digitally processed
  - Issued by one government authority and verifiable by any stakeholder
- Use of quick reference codes (QR-codes)
  - Enabling immediate verification for authenticity and integrity
- Preferential certificates of origin are the first trial – should be able to be scaled out to other trade documents
- Pilot being performed between Australia, Singapore and China





# Cross border inter-ledger exchange for Pref CoO

- The key value of this for trade documents is this:
  - **the issuing country can go 100% digital overnight**
- There is no dependency or technical readiness or infrastructure of importing countries.
- Those receiving or reading the received documents:
  - Some can implement advanced digital verification
  - Some can continue to just look at the PDF
  - Some can use the QR-code for a hybrid verification
- The decoupling of dependencies can allow a country to issue digital verifiable credentials and put in place such a 100% digital system within a month





# Cotton value chains

- Testing the usability of the UNECE-UN/CEFACT traceability and transparency toolbox in a blockchain environment
- Ensuring that a sustainability claim is accurate throughout the lifecycle and supply chain of cotton-related products
  - Origin of materials and products, fibre content, use of chemicals, product quality, social/environmental performance...
- Clear identification of data collection points within the supply chain
  - Farmers/suppliers, textile manufacturers, garment manufacturers, fashion brands, retailers, consumers, service providers
- Coupled with other technologies such as DNA markers



# UN/CEFACT Chain

- Developing a framework for development and implementation of Blockchain services infrastructure in compliance with the European Blockchain Partnership
- Challenges to implementing blockchain interoperability from different points of view:
  - Legal (what laws apply, what subjects need to be legified, functioning of smart contracts, etc.)
  - Technical (classification of data, globally unique identification, consensus mechanisms, relation to quantum computing, etc.)
  - Governance (policies, commercial models, on-chain/off-chain solutions, consensus mechanism, etc.)
- Providing some use cases to illustrate these challenges





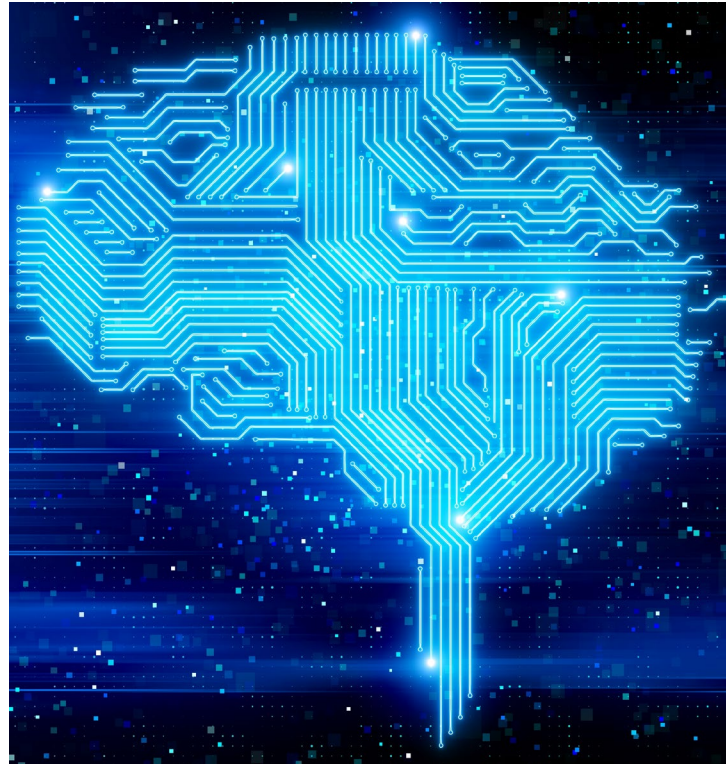
New data exchange evolutions  
impacting data exchange



# Artificial intelligence – basics

## Simple explanation

- AI is a system that simulates some aspects of human / biological intelligence in an artificial / machine environment
- The information derived from this data is used to decide best actions to achieve a given goal (machine learning)



## Possible applications

- Generally identify, analyze, process and verify data
- Risk analysis
- Fraud detection (fiscal or documentary)
- Identify computer bugs, viruses, etc.



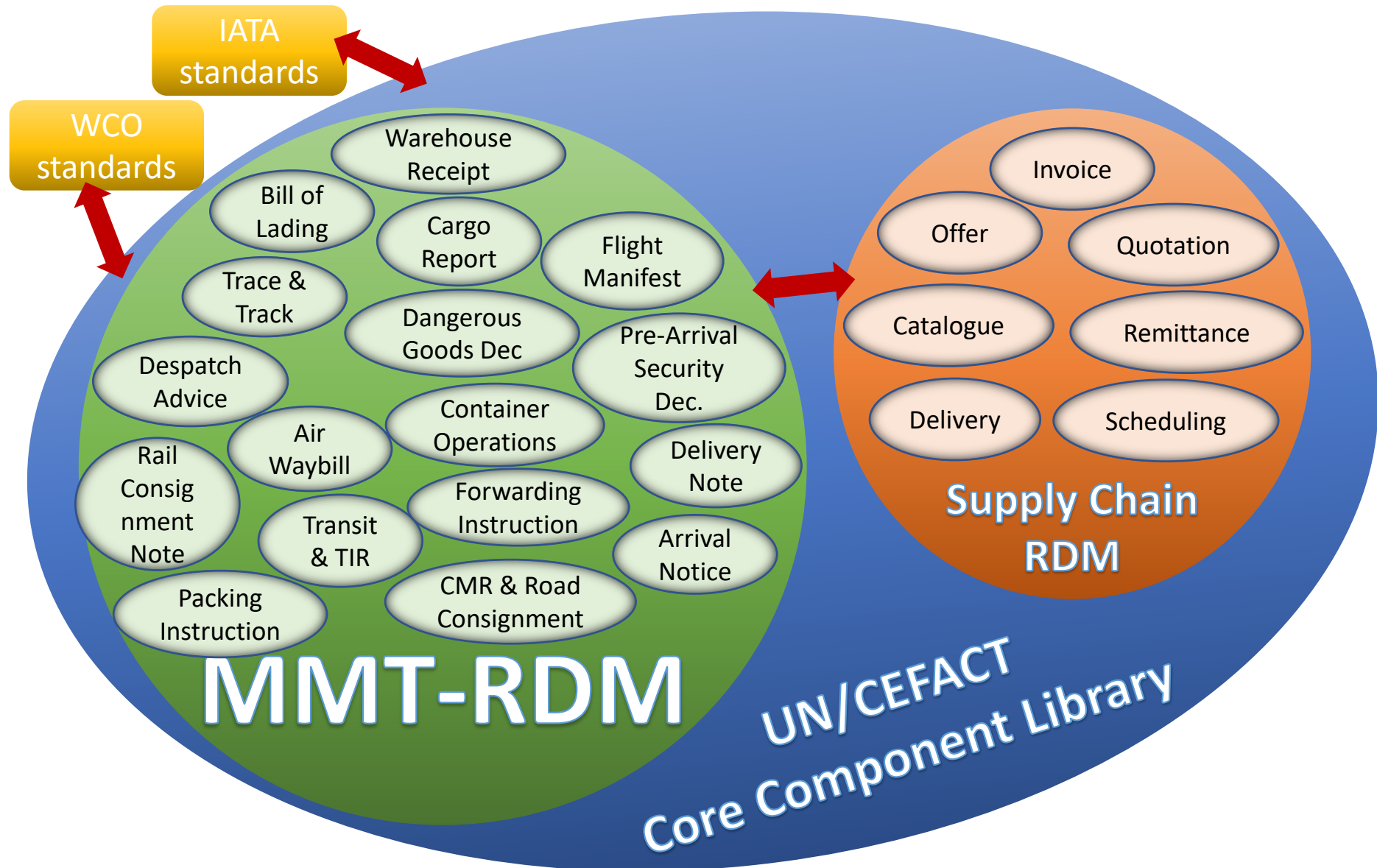


# Artificial intelligence – challenges

- Can the machine be seen as equal to a human?
- Who is responsible for a decision taken by a computer?
- The programmer can orient the way a decision is made based on the questions / criteria asked
- A statistical engine that produces probabilistic results, can make incorrect predictions
- AI could be used in situations where human lives could be put in danger (autonomous vehicles)



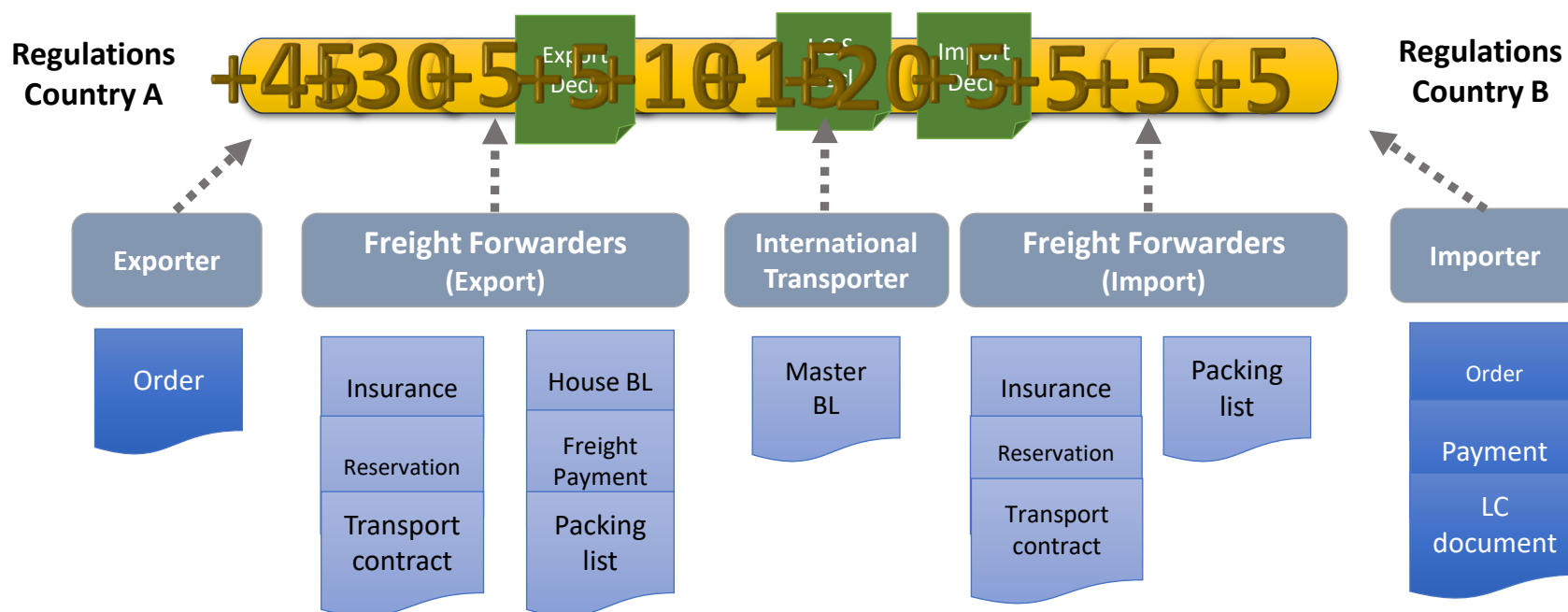
# Reference Data Models (RDM)



# Data pipeline

## • Data Pipeline

- Results from three EU projects (Cassandra, CORE & SELIS).
- Innovative methodology to recuperate data at the source and thus improve data quality.





# Tracking and tracing

- Operational / Logistics tracking of an asset (merchandise, pallet, container), to know where it is on the supply chain
- Regulatory / Compliance of merchandise, to ensure that regulations (economic, social or other) have been respected, especially when crossing borders
- Technical visibility of all the data exchanges, to ensure that the information has not been compromised or changed




























Making knowledge available



# Some of our Trade Facilitation Recommendations













- Rec1 – [UN Layout Key for Trade Documents](#)  
- Rec4 – [National Trade Facilitation Bodies](#)  
- Rec14 – [Authentication of Trade Documents](#)  
- Rec16 – [UN/LOCODE Code for Trade and Transport Locations](#) (recently revised)  
- Rec18 – [Facilitation Measures Related to International Trade Procedures](#)  
- Rec25 – [Use of the UN Electronic Data Interchange for Administration, Commerce and Transport Standard \(UN/EDIFACT\)](#)  
- Rec27 – [Preshipment Inspection](#)
- Rec33 – [Single Window Recommendation](#) (recently revised)  
- Rec34 – [Data Simplification and Standardization for International Trade](#)  
- Rec36 – [Single Window Interoperability](#)  
- Rec37 – [Single Submission Portals](#)  
- Rec38 – [Trade Information Portals](#) (pending final approval April 2021)  
- Rec41 – [Public Private Partnerships in Trade Facilitation](#)  
- Rec42 – [Trade and Transport Facilitation Monitoring Mechanism](#)  





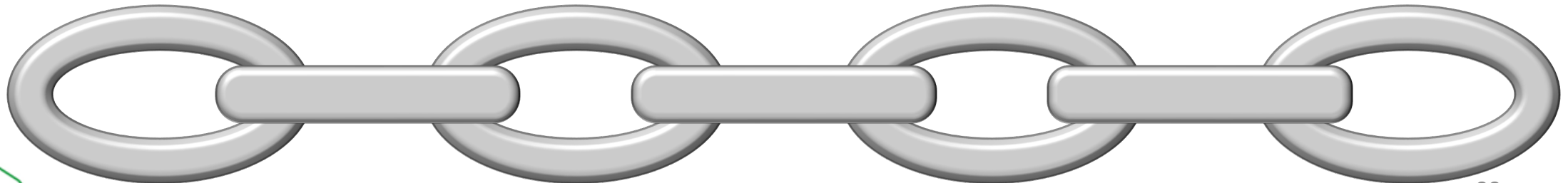
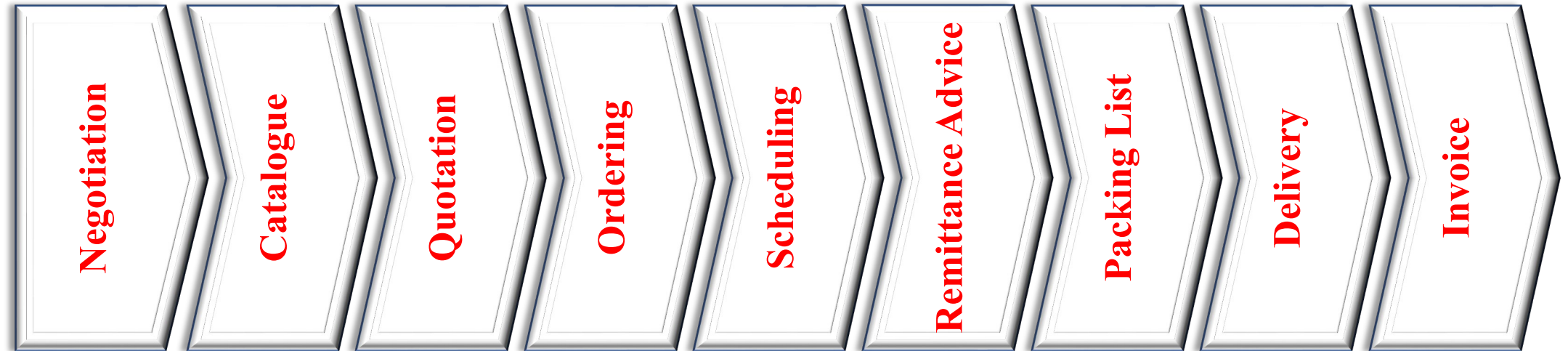


# Some of our Trade Facilitation White Papers

- [White Paper on Paperless Trade](#)  
- [White Paper Overview of Blockchain for Trade](#)  
- [White Paper on Technical Application of Blockchain to UN/CEFACT Deliverables](#)  
- [White Paper on Smart Containers](#)  
- [White Paper on Women in Trade Facilitation](#)
- [White Paper on Data Pipeline Concept for Improving Data Quality in the Supply Chain](#)
- [Technical Note on Terminology for Single Window and other electronic platforms](#)  
- [White Paper on Reference Data Model](#)  

# Accessing message exchange standards

UN/CEFACT Cross-Industry family of standards based on the Supply Chain Reference Data Model (SCRDM)





# UN/CEFACT Streamlined Standards

**Supply Chain Management**

**Supply Chain Reference Data Model (SCRDM)**

**Cross Industry Invoice**

- [BRS](#)
- [RSM](#)
- [Cross Industry Common Requirements BRS](#)
- [e-Invoice Executive Guide English](#) [French](#) [Russian](#)
- [XSD Schema](#)
- [UML Diagram](#)
- [HTML index](#)

**Cross Industry Delivery**

**Cross Industry Catalogue**

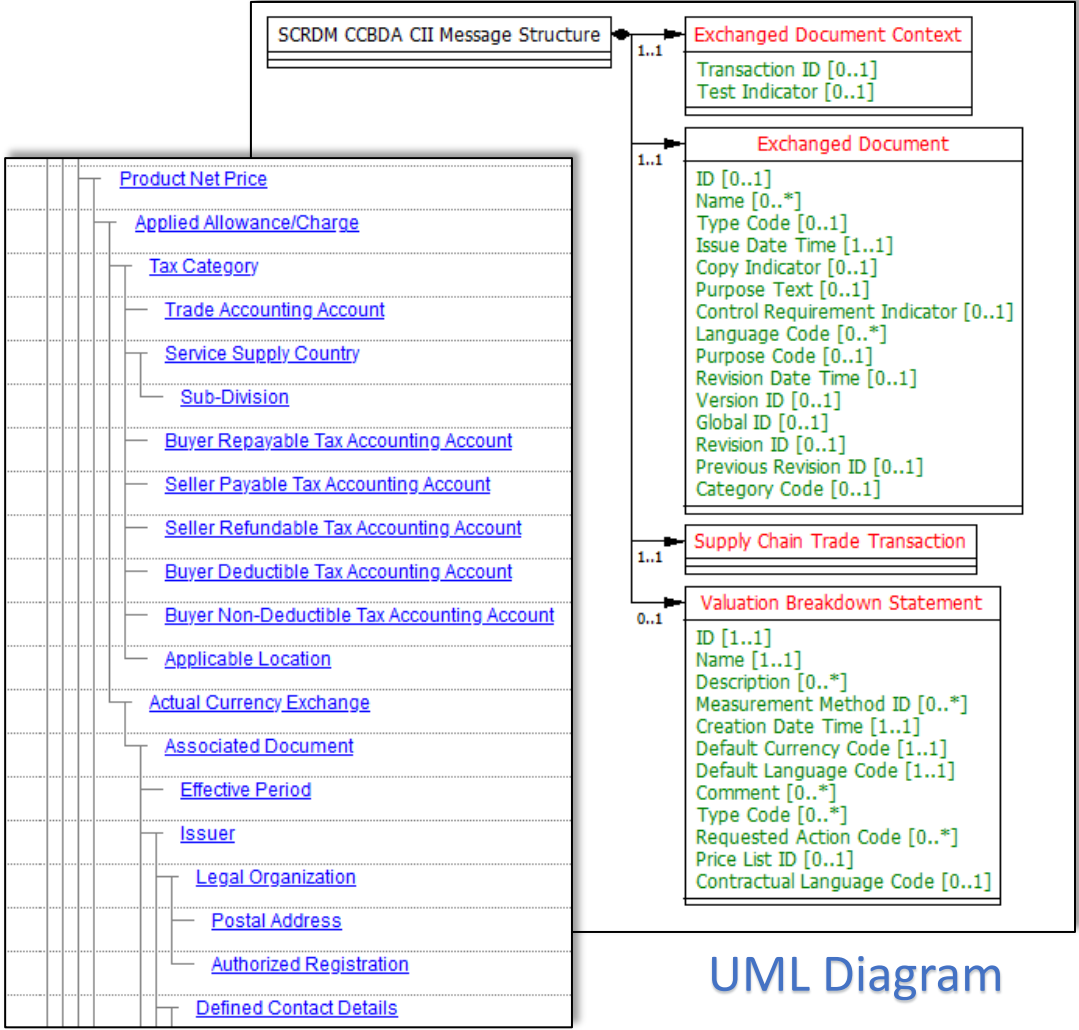
**Cross Industry Quotation**

**Cross Industry Remittance Advice**

**Cross Industry Scheduling**

**Cross Industry Ordering Process**

**Cross Industry Export Packing List**



UML Diagram

[UN/CEFACT Streamlined Standards page](#)

Message structure (on HTML index)



# UN/CEFACT Semantic Hub principle

## Benefits of UN/CEFACT Semantic Models

- Standardized data exchange syntax-neutral structures, based on common Master data exchange structure
- The support of information sharing, such as enabled by data pipelines, with the timely capture of quality data from original data sources ensuring supply chain visibility
- Reduction of administrative burden by efficient reuse of data shared within the BUY SHIP PAY domain model
- Common basis for implementing in chosen data exchange syntax(es)





# UN/CEFACT

- All experts are welcome to join the work of UN/CEFACT after registration:
  - <https://uncefact.unece.org/display/uncefactpublic/UNCEFACT+Expert+Registration>
- All deliverables of UN/CEFACT are available free of charge on our website
  - <https://unece.org/trade/uncefact>
- All UN Member States are welcome to participate in the approval process

Рақмет сізге Rhamat

Ďakujem



Merci

شکرا جزيا

Дякую

Hvala

ありがとうございました

Tack

Çox sağ ol

Dziękuję Ci

Ευχαριστώ

Obrigado

Ačiū

მადლობთ

Баярлалаа

धन्यवाद

Dankon

Sagbol

Спасибо

Thank you

Diolch

Хвала вам

Hatur nuhun

Faleminderit

감사합니다

# Any questions?

Paldies

Grazzi

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Grazie

Mulțumesc

Ačiū

Danke

Благодаря ти

Faafetai

Rahmat

Շնորհակալություն

Takk skal du ha

Aitäh

සුභඤ්ඤා

谢谢

Ви благодарам

Děkuji

Köszönöm

Дзякуй

Gracias

Salamat

UN / CEFAC

Tak skal du have

Рахмат сага

Gràcies

Asante

תודה

धन्यवाद

Mahalo

Kiitos

Go raibh maith agat

Teşekkür ederim

Dank je

Dankon

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Þakka þér fyrir

Dankie

