eGovernment Domain Discussion – 34th UN/CEFACT Forum

Vice Chair

Mr. Tahseen Ahmad Khan

Domain Coordinator

Mr. Kaushik Srinivasan

Date

Oct 29-30, 2019

Location

International Maritime Organization, London

Room 12

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UN / CEFACT

Agenda – Oct 29, 2019

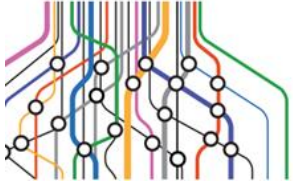| Time	Topic	Speaker and Comments
9.00 – 10.30	eGov Domain – Update Discussion on Whitepaper project on use of IoT in Trade Facilitation	Tahseen Khan, Vice Chair Kaushik Srinivasan, Domain Coordinator Virginia Cram Martos – Project Leader, IoT Whitepaper
10.30 – 11.00	Coffee Break	
11.00 – 12.30	Discussion on Whitepaper project on use of IoT in Trade Facilitation	Virginia Cram Martos – Project Leader, IoT Whitepaper
12.30 – 14.00	Lunch Break	
14.00 – 15.30	Discussion on cross border distributed ledger project for digital certificate of origin	Steve Capell, Project Leader, Cross border distributed ledger project
15.30 – 16.00	Coffee Break	
16.00 – 17.30	Discussion on proposed project on digital ID for Trade	Working Group

Agenda – Oct 30, 2019

Time	Topic	Speaker and Comments
9.00 – 10.30	Discussion on use of Artificial Intelligence in Trade Facilitation	Working Group
10.30 – 11.00	Coffee Break	
11.00 – 12.30	Cross Border Authentication, Data Retention and Time Stamping Closing Remarks	Working Group

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eGovernment Domain Update – Recap from April Forum

Recap

- Action Items from April forum
    - Issue Call for participation for IoT Whitepaper project
    - Mutual Recognition for trusted trans-boundary electronic interaction
        - Continue work on International Convention on Mutual Recognition to understand how we can complement UNCITRAL's work on Mutual Recognition through a project
    - Begin work on project on cross border exchange of Digital Certificate of Origin using Blockchain
    - Prepare and finalize project proposal for Digital ID for Trade project
    - Study certain emerging technologies such as Quantum Computing, Artificial Intelligence in the context of IoT Whitepaper project
    - Conduct more research on ePayment Systems particularly on the issue of electronic transferable records to see if framework/standards are required for implementation of UNCITRAL Model Law
    - Pursue data retention and timestamping as a separate project

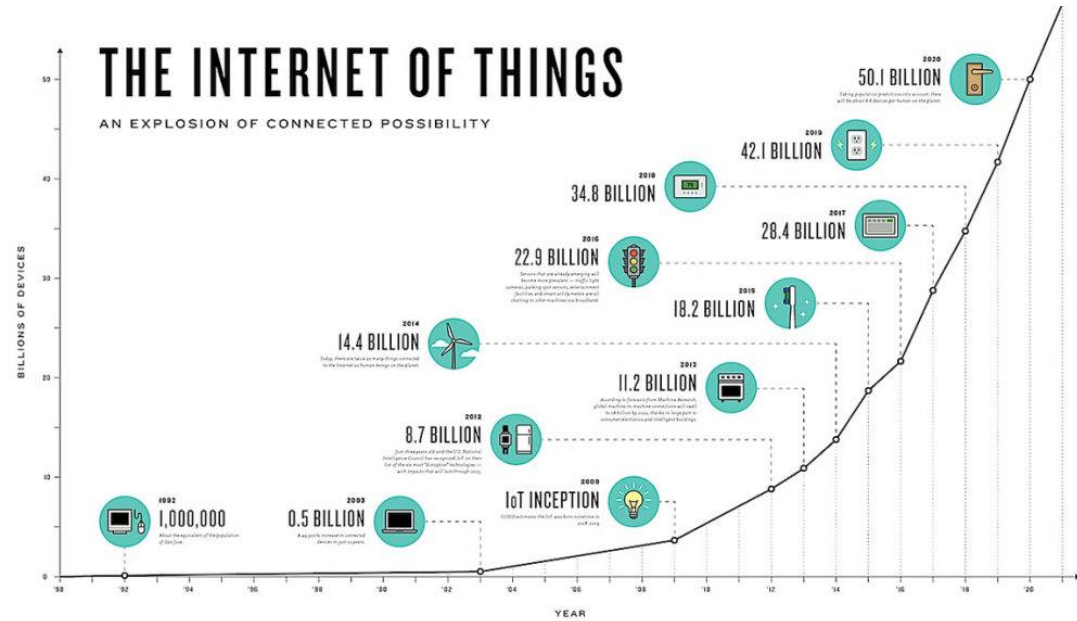UNECE

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IoT Whitepaper Project
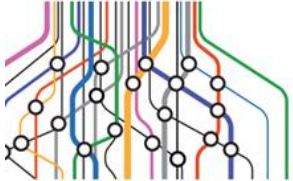
Background

IoT devices are expected to be 50bn in 2020! This creates huge possibility for trade facilitation while throwing open a number of challenges in adoption and implementation

Challenges include technology, operations, interoperability etc and lack of standards for data using IoT devices

To understand these issues better and the usage of IoT with emerging technologies such as Blockchain and Artificial Intelligence, work on the IoT Whitepaper was started after the April Forum
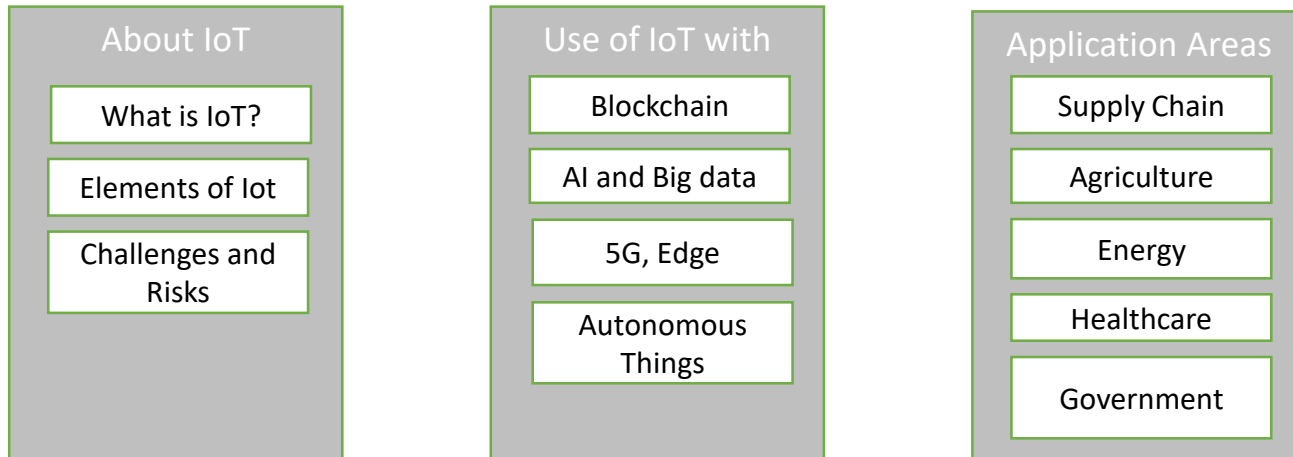

THE INTERNET OF THINGS
AN EXPLOSION OF CONNECTED POSSIBILITY

Source - https://www.ncta.com/whats-new/infographic-the-growth-of-the-internet-of-things

Scope of the project

The scope includes two whitepaper deliverables

1. Use of IoT in Trade Facilitation – focus areas include

About IoT	Use of IoT with	Application Areas
What is IoT?	Blockchain	Supply Chain
Elements of Iot	AI and Big data	Agriculture
Challenges and Risks	5G, Edge	Energy
	Autonomous Things	Healthcare
		Government

2. Use of UN/CEFACT standards in IoT

Data Standards	Process Standards	Message Standards	Cyber Security Issues

Timeline and Approach

Project Website

https://uncefact.unece.org/display/uncefactpublic/Internet+of+Things+for+Trade+Facilitation

Project Timeline

- The project commencement was May 2019.

- Focus areas/Chapters identified by June 2019

- Multiple conference calls held to identify Chapter Coordinators

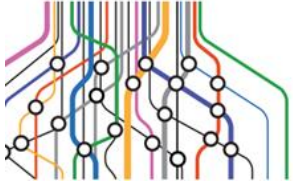- Draft Chapters for first Whitepaper being submitted

Next Steps

- Identify chapter coordinators for Standards Whitepaper

- Once drafts are finalized, submit to secretariat for review
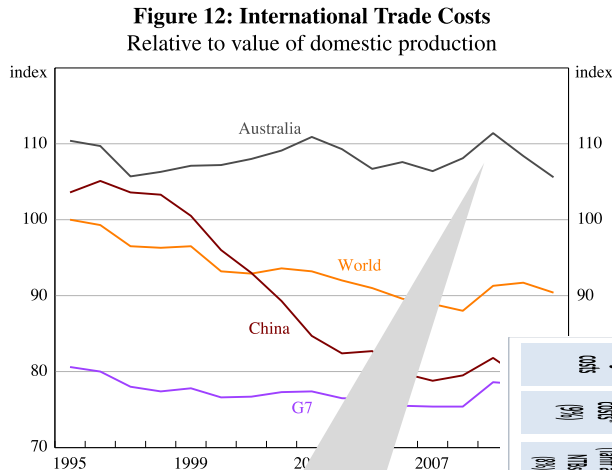
- Whitepaper due for submission by Apr 2020 Forum

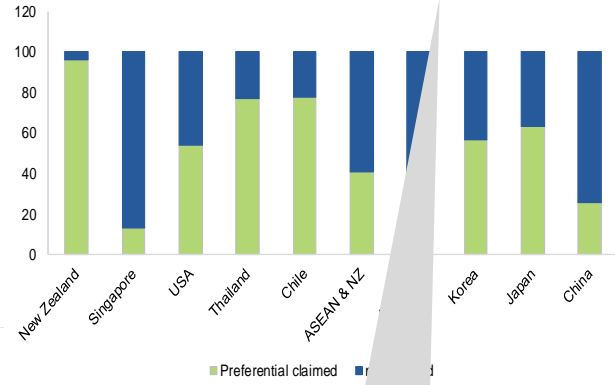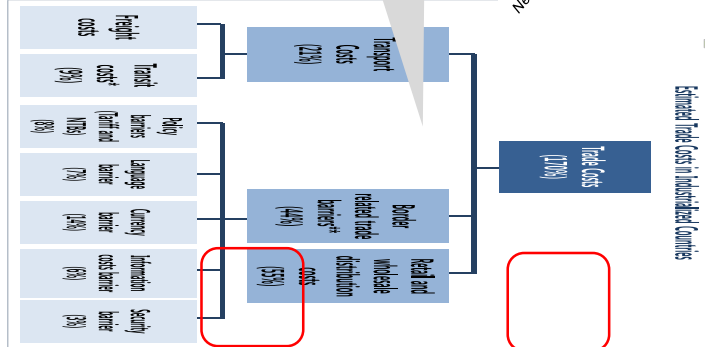# Cross border exchange of digital preferential Certificate of Origin

Why inter-customs ledger?

Unlike national single windows which streamline interactions between a government and it's regulated community, the inter-government ledger (IGL) focusses on cross-border processes which are still very paper intensive. The goal is to reduce the cost of trade and improve uptake of FTAs.

Figure 12: International Trade Costs
Relative to value of domestic production

UN/ESCAP – 44% of trade costs are related to border procedures

RBA – AU cost of trade is not decreasing as fast as the world benchmark

Productivity commission – origin rules are so complicated that they erode much of the FTA concession

Estimated Trade Costs in Industrialised Countries

Preferential claimed

Transport Costs (21%)

Border related trade barriers** (44%)

Trade Costs (170%)

Freight costs
Transit costs* (9%)
Tariff and NTBs (8%)
Language barrier (7%)
Currency barrier (14%)
Information costs barrier (6%)
Security barrier (3%)
Retail and wholesale distribution cost (55%)

Certificate of Origin - Example

Despite our "digital world" there is still a mountain of physical paper documents in international trade processes that present non-tariff barriers to exporters.
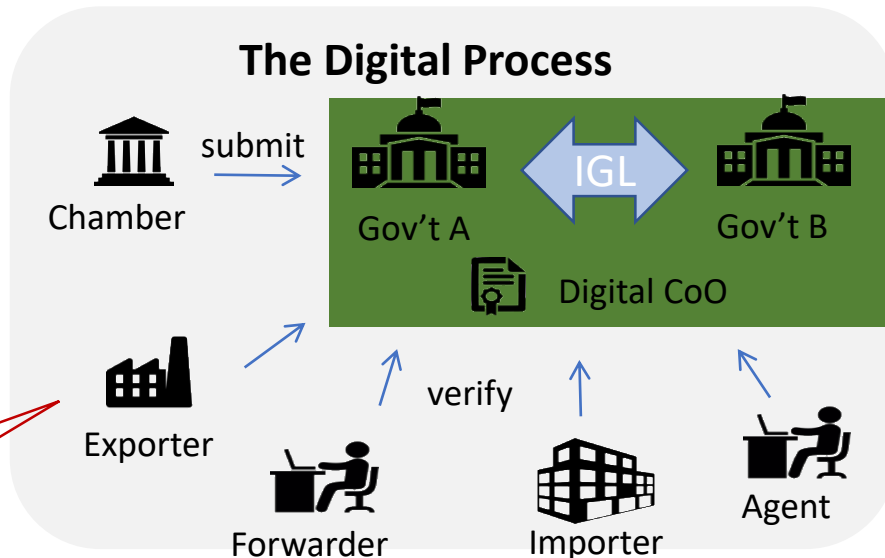

HELP!

The Paper Process

Chamber   Gov country A   Gov country B

Paper CoO

Exporter   Agent

Forwarder   Importer
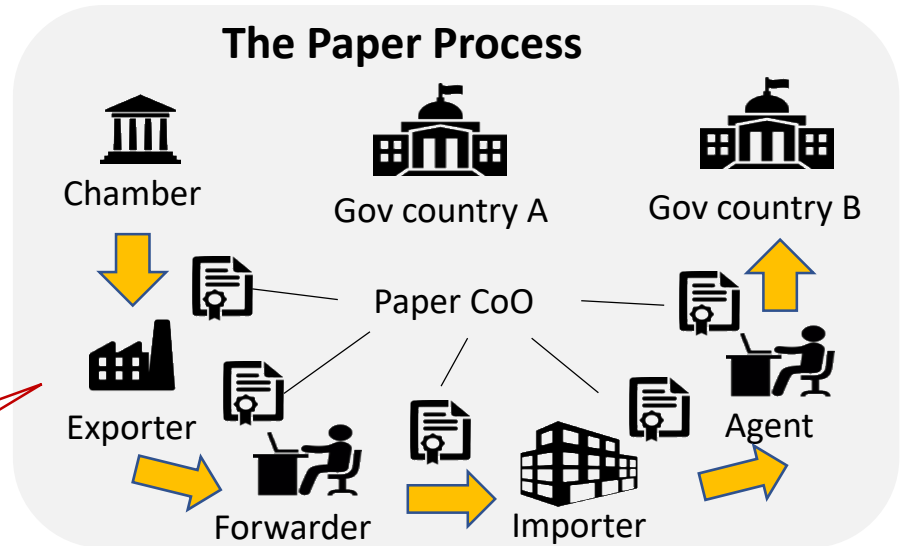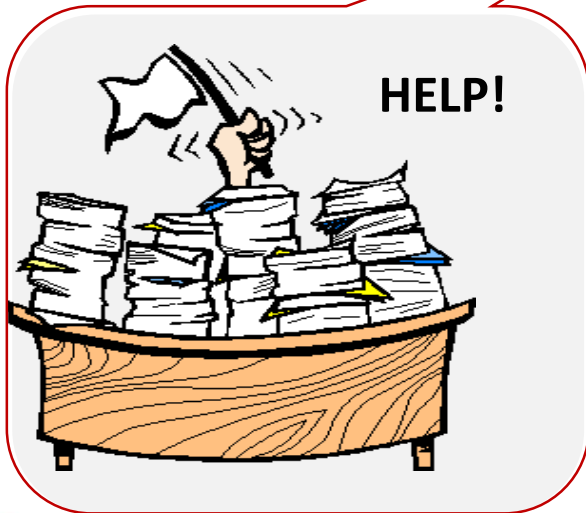
Certificates of Origin, for example, are

1. Issued by chamber to exporter
2. Provided to forwarder by exporter
3. Sent to importer via courier
4. Provided to customs agent by importer
5. Given to customs with clearance pack.
6. Goods may be held at port if the paper "doesn't look right"

Better Certificates of Origin

Importing regulators have no way to trust authenticity of docs direct from parties in exporting country. But they will trust digital docs if they are sent via exporting regulator. **The G2G channel solves the trust problem**

Easy!

The Digital Process

Chamber — submit → Gov't A ← IGL → Gov't B

Digital CoO

Exporter

verify

Forwarder   Importer   Agent

Back to certificates:

1. Digital data provided to exporting regulator by identified chamber (or exporter)

2. Forwarded securely to importing regulator **and immediately validated**.

3. All interested parties can verify the certificate is sent and valid.

Scope of specifications

The IGL is a blockchain anchored multi-channel architecture for governments to securely exchange digital data and for any third party to verify the integrity of the data. The IGL specification is provided as a suite a standard interfaces (APIs) that can be used by industry or governments in each jurisdiction (the yellow boxes on the diagram).

This bit is the IGL
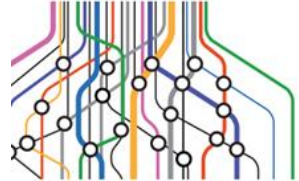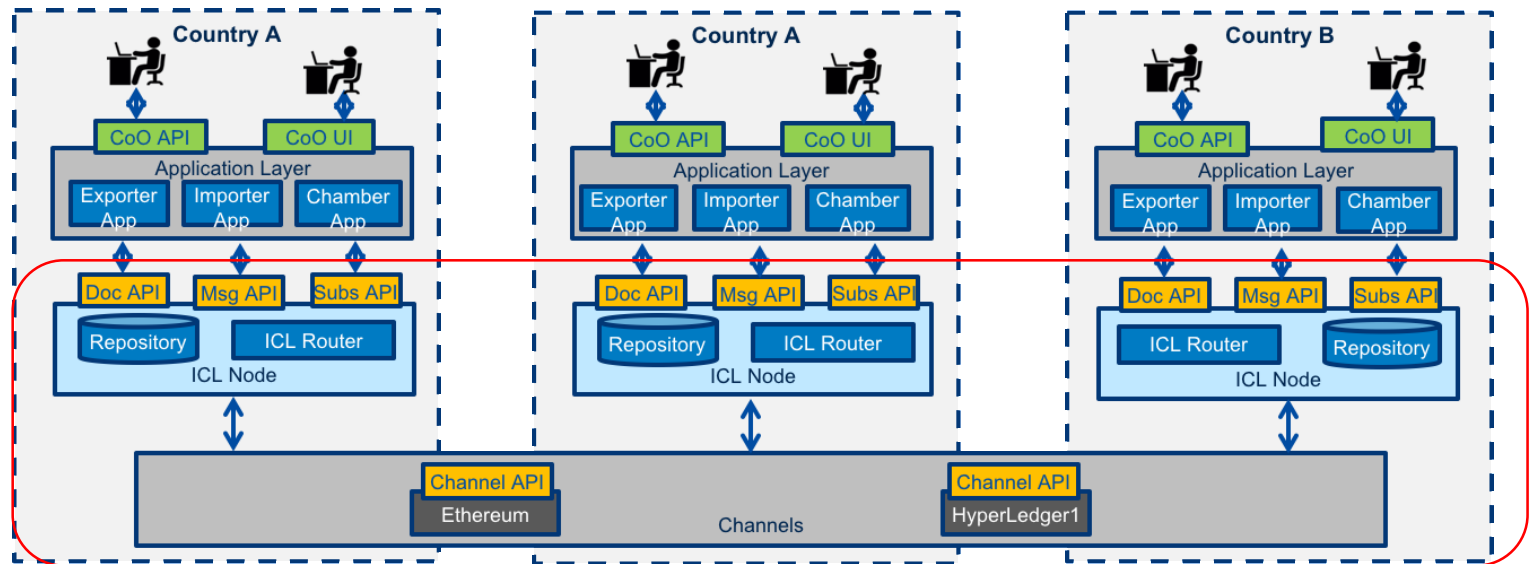
Specification Timeline and Approach

Timeline of standard development

- The project commencement was April 2019.

- Early draft API specifications were developed by July 2019

- An interim face-to-face meeting was held in Singapore in September 2019

- Based on lessens from the Singapore meeting, next draft API specs are due November 2019.
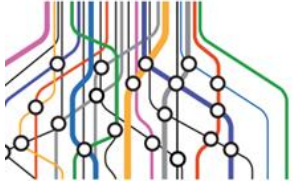
- Final specifications are due April 2020

Approach to standard development

- Agile, collaborative & iterative – and informed by real implementations

- AU implementation (alpha) is github.com/trustbridge

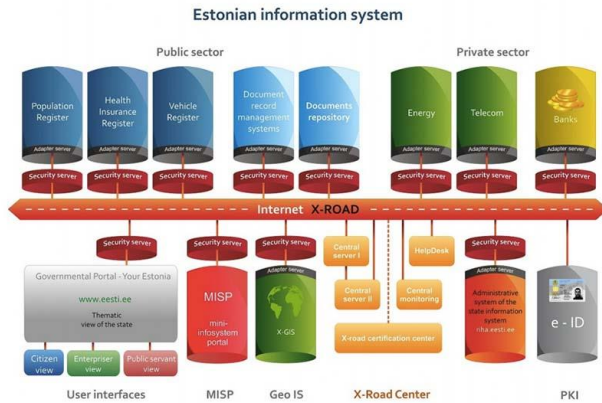- SG implementation (alpha) is github.com/tradetrust

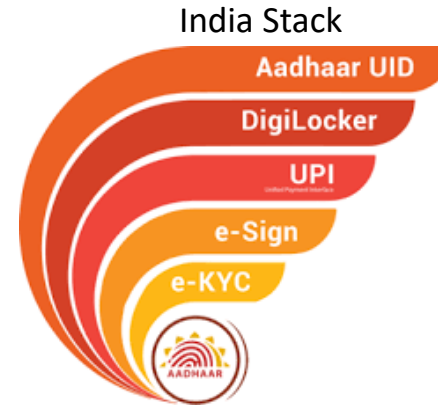# Proposed Project on Digital ID for Trade

Digital ID for Trade

Estonian information system

Source – pubdocs.worldbank.com

India Stack

Aadhaar UID
DigiLocker
UPI
e-Sign
e-KYC

Source – indiastack.org

Australia Digital ID

Digital iD
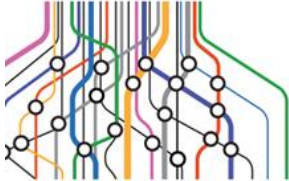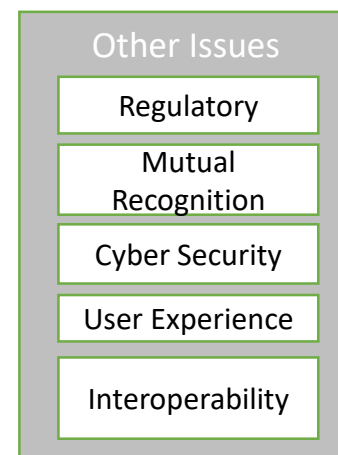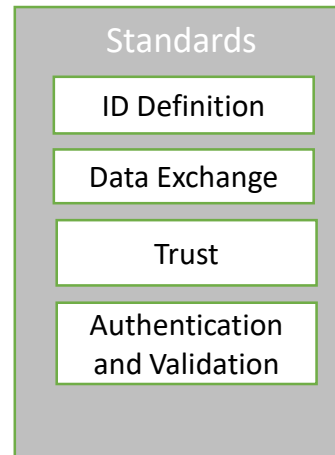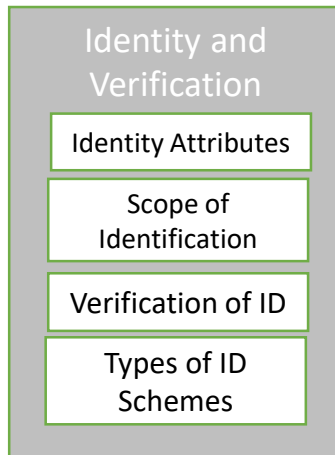Prove who you
are online and
in person

Source – digitalid.com

- Last Forum, we saw a number of digital ID systems implemented in different countries (Estonia, India, Australia etc) or for different use cases (GLEIF etc)

- Each system has a different implementation approach for solving a variety of use cases including trade facilitation, financial inclusion etc

- Given that identity is an important element in cross border trade, a project was proposed to be launched to assess the various implementations and showcase best practices for facilitating cross border trade

Scope of the project

The scope includes two deliverables

1. Whitepaper on case studies of existing Digital Id systems and their implementation methodologies in the context of cross border trade

2. Guidance material for developing digital ID systems to facilitate cross border paperless trade

3. Focus areas include

Identity and Verification	Standards	Other Issues
Identity Attributes	ID Definition	Regulatory
Scope of Identification	Data Exchange	Mutual Recognition
Verification of ID	Trust	Cyber Security
Types of ID Schemes	Authentication and Validation	User Experience
		Interoperability

Timeline and Approach

Project Timeline

- The project proposal has been prepared and submitted to Bureau for review and approval

- Project Team

    - Lead – Vijay Kumar, India

    - Co-Lead – Chris Gough, Australia

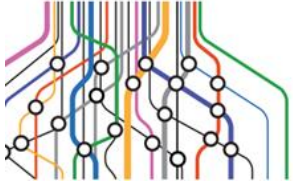- Project focus areas to be discussed during London Forum

Next Steps

- Issue Call for participation – Nov 2019 (subject to Bureau's approval)

Artificial Intelligence in Trade Facilitation

Artificial Intelligence in Trade Facilitation

- Cross border trade results in huge amount of structured and unstructured data as part of buy-ship-pay process

- Last Forum, we saw that AI has evolved to Machine Learning (predictive analytics) and Deep Learning (image processing, video analytics)

- In the context of cross border trade

  - A number of use cases have emerged where AI is used to ensure quicker processing of paperwork and drive reduction in cost.

  - Some of these implementations use AI with Blockchain and IoT
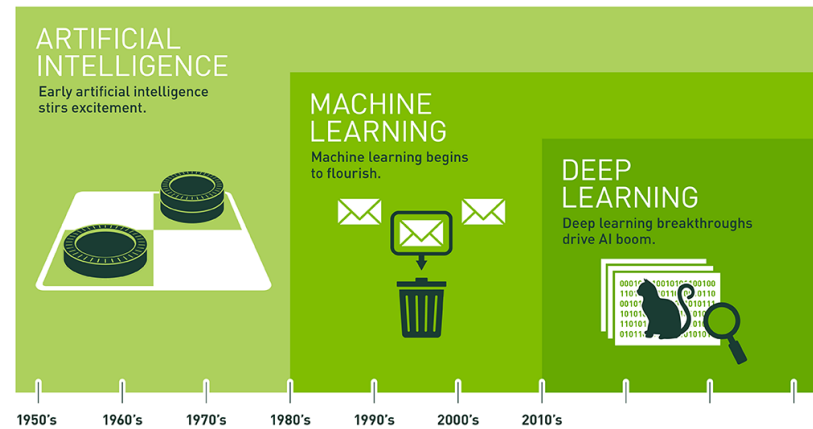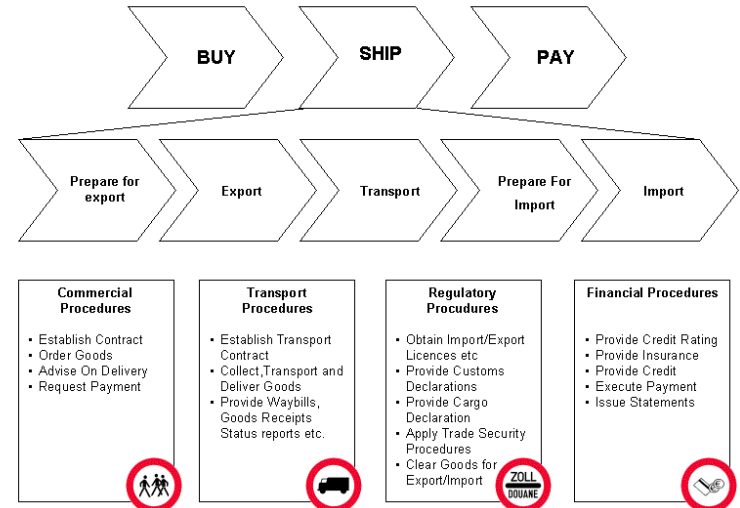
Since an early flush of optimism in the 1950s, smaller subsets of artificial intelligence – first machine learning, then deep learning, a subset of machine learning – have created ever larger disruptions.

Source - https://blogs.nvidia.com/blog/2016/07/29/whats-difference-artificial-intelligence-machine-learning-deep-learning-ai/

Artificial Intelligence in Trade Facilitation

- Discussion areas for London Forum
    - Case Studies in the use of AI in Trade Facilitation
    - Standards that are being developed for use of Big Data and AI
    - Technologies behind AI that power Machine Learning and Deep Learning
    - Discuss the launch of new project on use of AI in Trade Facilitation

Authentication mechanisms in cross border paperless trade
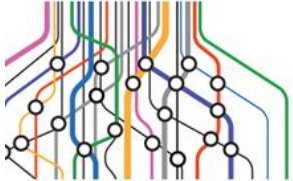
Authentication mechanisms in cross border paperless trade

- Over the last two forums, we had several discussions in mutual recognition of cross border electronic trade documents. The topics can be found at

- Link - https://www.unece.org/fileadmin/DAM/cefact/cf_forums/2019_Geneva/PPT_eGov-Domain.pdf

- Key highlights from these discussions

    - Existing mutual recognition mechanisms are bi-lateral or regional

    - Need for standardization of these mechanisms for interopeability

    - UNCITRAL has been doing work related to « Legal issues related to Identity Management and Trust Services »

    - UN/CEFACT could play a role defining key components and highlighting best practices in existing cross border mutual recognition mechanisms
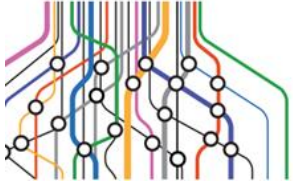
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Authentication mechanisms in cross border paperless trade

- Next Steps
    - Discuss current implementations of bi-lateral or multi-lateral mutual recognition mechanisms
    - Discuss launching a project to study authentication mechanisms in cross border paperless trade that can act as a basis for future work on Mutual Recognition
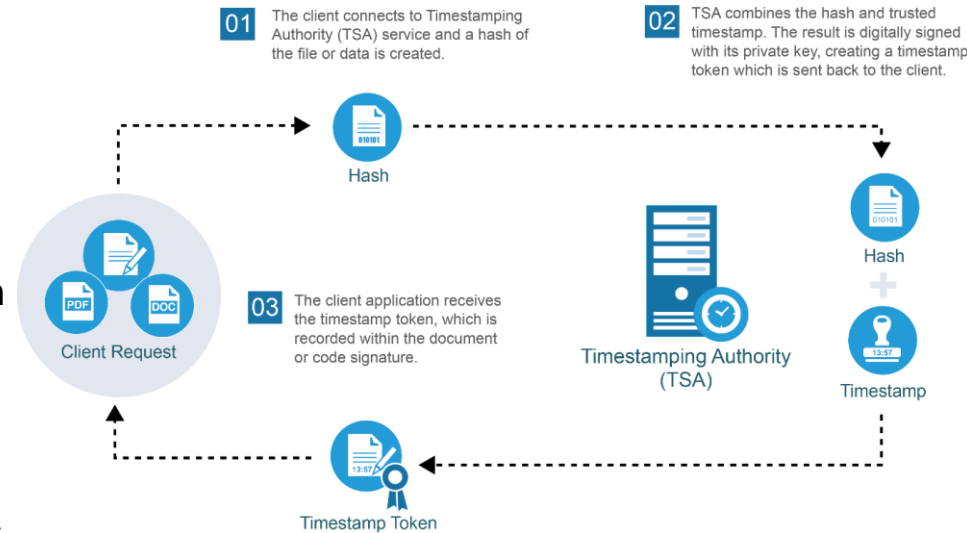
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Data Retention and Timestamping

Data Retention and Time Stamping

- Last forum, the group discussed issues around data retention and time stamping including

    - Use of appropriate storage systems for data preservation

    - Compliance management

    - Emergence of cloud and its impact on data retention

    - Use of timestamping systems for storing critical data

01 The client connects to Timestamping Authority (TSA) service and a hash of the file or data is created.

02 TSA combines the hash and trusted timestamp. The result is digitally signed with its private key, creating a timestamp token which is sent back to the client.

03 The client application receives the timestamp token, which is recorded within the document or code signature.

How time stamping works?
Source - https://www.globalsign.com/en/blog/what-is-timestamping-how-does-it-work/
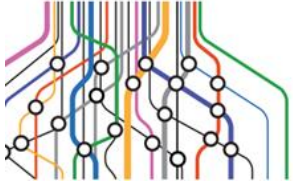
- Rapid change in storage, computing technology has created a need for standardization in data retention

- Discussion areas

    - Case Studies and Best Practices in the context of trade facilitation

    - Use Cases for timestamping

    - Impact of privacy laws on data retention

    - Discuss the launch of a new project?

eGovernment Work Programme 2019-2020

eGov Work Programme 2019-20

- At eGovernment domain, our focus is continuously look at emerging technologies to
  - Assess their impact on trade facilitation
  - Understand how UN/CEFACT standards can be used in the context of these emerging technologies
- Work completed
  - Two Whitepapers on Blockchain that are published
    - Overview of Blockchain for Trade (https://www.unece.org/fileadmin/DAM/cefact/GuidanceMaterials/WhitePaperBlockchain.pdf)
    - Technical Application of Blockchain to UN/CEFACT deliverables (https://www.unece.org/fileadmin/DAM/cefact/GuidanceMaterials/WhitePaperBlockchain_TechApplication.pdf)
- Current Work
  - IoT Whitepaper project that focuses on the use of IoT in trade facilitation, use of UN/CEFACT standards in IoT and case studies
  - Project on cross border exchange of Digital Certificate of Origin using Blockchain
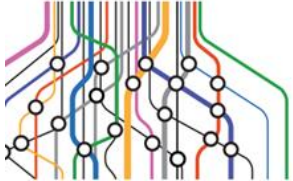
eGov Work Programme 2019-20

- Proposed Work
  - Digital ID for Trade
  - Authentication mechanism for cross border paperless trade
  - Data Retention and Timestamping

Interested in learning more or contributing as an UN/CEFACT expert member?

Join us on Oct 29th and 30th at the 34th UN/CEFACT London Forum

Location - Room 12, International Maritime Organization, London

Thank you