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Meeting report
Blockchain / distributed ledgers for traceability and due diligence in garment and footwear value chains in a circular economy
Wednesday 11 September 2019 – OECD, Paris

1. OPENING OF THE MEETING AND INTRODUCTION OF MEETING PURPOSE

Mr. Frans van Diepen - UNECE UN/CEFACT Domain Coordinator, The Netherlands provided an overview of the topics for discussion and recalled the scope of the Project 'Enhancing transparency and traceability of sustainable value chains in the garment and footwear industry' that UNECE will jointly implement with ITC, and in collaboration with the European Commission and the ILO. The purpose is to develop a transparency and traceability framework to promote decent jobs and sustainable patterns of production and consumption, throughout the entire value chain, from raw material production, to end and post consumption, in line with a circular economy approach. Under the project, a first pilot project will be implemented using blockchain technology to foster traceability and due diligence in the industry with a focus on cotton value chains.

Mrs. Maria Teresa Pisani - UNECE Secretariat mentioned that following the signature of the funding agreement with the European Union in July 2019, UNECE has started implementing the project. She also referred that project pilots will be developed concomitantly with the development of the policy recommendations, the technical standards and the transparency and traceability tool under the project. She referred that the first pilot will focus on cotton value chain. In this connection, she recalled that the aim of the meeting was to discuss key requirements for the supply chain model, the data model and the technology model for the pilot, based on recommendations, experiences and lessons learned from key players and technology providers in the sector.

2. HIGHLIGHTS FROM SPEAKERS

Mr. Heinz Zeller - HUGO BOSS Ticino gave an overview of the complexity of the textile value chains' ecosystem and highlighted that compliance and business information are currently stored in differing proprietary systems, which results in a lack of transparency. The three key components of a blockchain system were defined as the distributed ledger technology (DLT) of cryptographically secured transactions, smart contracts allowing the automation of repetitive tasks, and tokens bringing together procurement, compliance and financial transactions. The blockchain ecosystem can foster digital consumer engagement as well as the circular economy by making product information available throughout the whole chain.

Mrs. Piera Solinas - UNIDO introduced the Egyptian pilot project for the cotton value chain that UNIDO jointly with HUGO BOSS and Better Cotton Initiative (BCI) launched in 2017 together with the Ministry of Trade and Industry and the Ministry of Agriculture of Egypt with funding from the Italian Agency for Development and Cooperation. The project activated pilot cultivations aligned with the BCI and organic systems through a multi-stakeholder program, which overall paved the way to promote sustainable cotton in Egypt and opportunities for scalability.

In the backdrop of her study 'Blockchain for a traceable, circular textile supply chain: a requirements approach', **Mrs. Melissa Rusinek - Diverse Recycling Solutions** presented the information and the technological models of a blockchain system, notably the data capturing, sharing and storage, and referred about there are three types of data metrics which can be recorded on the blocks of a blockchain solution to close the loop in textile supply chains: economic, social and functional.

Mr. Jan Merckx - GS1 elaborated on the strategic pathways business/value chain model of a blockchain project. The main considerations for the business community prior to implementing a blockchain solution are as follows:

- Agreeing on existing standards for unique identification, visibility data models and the method of exchange of that data;
- Developing a specific guidance to apply standards consistently across an industry and a business problem;
- Creating an overarching governance policy that every blockchain-based solution ecosystem will adhere to.

From GS1's standpoint, it is advised to build upon existing standards rather than creating new ones. In order to manage the blockchain, it is necessary to agree on the accessibility of the blockchain and the type of information referenced. Transparency into how the process is facilitated is key for the integration of the overall blockchain system and its attractiveness towards supply chains' several parties.

Mrs. Virginia Cram Martos – UNECE UN/CEFACT expert, CEO of Triangularity gave a presentation on standards for interoperability to support the exchange of data between blockchains in traceability applications. Interoperability is of two basic kinds. One of these is **semantic interoperability** which establishes common definitions and formats for data so that computer systems can correctly interpret the data they receive. The second kind is **technical interoperability** and it provides the technical specifications for how data "physically" and logically moves across blockchains and networks. The work of UN/CEFACT (an intergovernmental body in the UNECE) that can support blockchain-technology-based applications was highlighted. This included its: Core Components Library (CCL) of data definitions, the blockchain whitepaper project and the project on the cross border inter-ledger [inter-blockchain] exchange of preferential certificates of origin. Another project in UN/CEFACT to increase technical interoperability is looking at the use Application Programming Interfaces (APIs) based on UN/CEFACT reference data models (subsets of the CCL). UN/CEFACT has already launched two projects to create an environment conducive to the development of open standards-based APIs.

Mrs. Evonne Tann - Textile Exchange emphasized Textile Exchange's sustainability standards and particularly the Content Claim Standard (CCS) which consists in a verified chain of custody from the raw material to the brand and retail level. These sustainability standards can apply to a blockchain application which can reinforce thoroughly the integrity of the whole chain tackling issues such as fraud, non-compliant activities, data silos and duplication. She also stressed that interoperability and information exchange are two key enablers for the traceability of sustainable value chains.

Mr. Fabian Vogelsteller – Lukso laid out the standards of the technology model Lukso, a public permission-less blockchain for the fashion industry. Lukso's smart contracts use digital certificates; each product is embedded with an un-cloneable identifying NFC-tag that is cryptographically secured and blockchain compatible. The NFC-tag registers on the blockchain the properties of the product, thereby ensuring the consumer to be able to claim the digital ownership of the product through an app. He also discussed how the Ethereum Virtual Machine, which accounts for the most advanced smart contract protocol, could also be a tool to address supply chain sustainability issues.

Mr. Daniele Del Genio – Calceviva and **Stefano De Vescovi – IBM** made a presentation about the proof of concept using DLT to foster sustainability, origin and quality in the Italian textile industry, supported by the Italian Ministry of Economic Development, the Italian customs and ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development) and manufacturers' associations. More than 40 participants got involved and adopted standardised data exchange formats with the purpose of tracing the manufacturing from raw materials to textiles. The pilot came up with the first proof of concept of an interaction map.
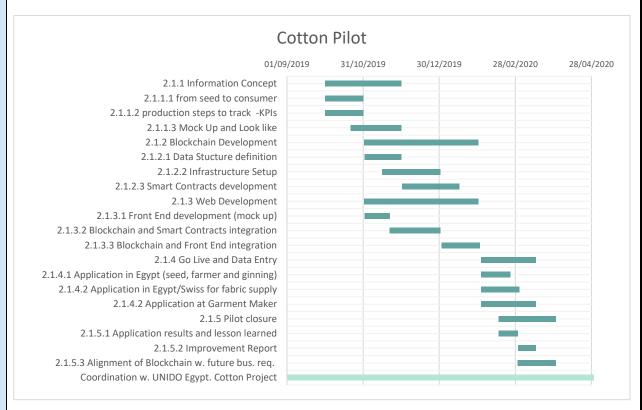
Mr. Thomas Mason - Organic Cotton Accelerator reported on the Organic Cotton Traceability Pilot to trace organic cotton from farm to consumer which they have been conducting over the last 12 months in India. The main outcome of their pilot is that innovative marker technologies (QR code, NFC, invisible fluorescents, synthetic DNA, microbiome analysis) combined with blockchain

technology provide opportunities for full traceability considering that the field testing underway is very encouraging. OCA intends to build upon these findings to implement a Textile Traceability Task Force in order to develop a comprehensive and harmonised traceability vision and roadmap for the organic cotton sector.

Miriam Geelhoed – Modint (Dutch trade organisation for the textile industry) presented the Textile platform launched together with SIM, a technology partner in data collection leading blockchain platforms for European food retailers. This fashion platform will interconnect with other existing legacy systems or platforms containing relevant data. The digitisation of the data will become a driving force to support the textile industry's towards sustainability.

3. NEXT STEPS

Mrs. Maria Teresa Pisani - UNECE Secretariat presented the key steps of the cotton blockchain pilot, that will be conducted over the first year, simultaneously with the main projects outputs (the policy recommendations, the standards and the transparency and traceability tool) which would need to be promoted afterwards at the international, regional and national policy levels. For the cotton pilot, UNECE is currently preparing a project document for discussion at the next project meeting in London on 30-31st October, which details the scope, implementing partners involved, the objectives, the outcomes, the activities, and the implementation timeframe and foreseen budget, and expertise needed in terms of knowledge of the value chain, relevant business and customs operations and relevant standards and certification for due diligence. Regarding the implementation of the pilot, the following timeframe was discussed:

The meeting in October (30-31) under the 34th UN/CEFACT Forum (London) will be a milestone to advance the work on project outputs as well as on the blockchain pilot for traceability of sustainable in cotton value chains.
For that purpose, prior to the meeting:
- The annotated agenda of the meeting will be circulated by the end of September.
- The pilot project document will be drafted and disseminated by mid-October to the meeting participants as a basis for discussion.
- The Business Requirements Specification (BRS) document for the traceability standard will be circulated by the end of October for discussion at the meeting.

3. CONTRIBUTIONS TO THE UPCOMING MEETINGS AND EVENTS

- *WTO, World Cotton Day (7 October 2019, Geneva)*
- *ITC Trade for Sustainable Development Forum (7-9 October 2019, Geneva)*
- *UNECE 34th UN/CEFACT Forum (30-31 October 2019, London)*
- *OECD Due Diligence in the Garment and Footwear Sector Forum (11-13 February 2020, Paris)*

4. CLOSING OF THE MEETING

Mr. Frans van Diepen – UNECE UN/CEFACT Domain Coordinator and Maria Teresa Pisani - UNECE Secretariat closed the meeting and summarised the next steps (see above).

4. ANNEXES

- Reference document: Background note 'Blockchain for due diligence in the garment and footwear sector' (UNECE)

- Flash report OECD Global Blockchain Policy Forum - Deep Dive Round 2 'Looking Past the Hype on Blockchain: Understanding use cases for due diligence in raw material supply chains'

- List of participants UNECE meeting (11/09/2019, OECD Paris)

Argento	Crispin	Organic Cotton Accelerator
Canevelli	Luca	Kering
Chassot	Olivia	UNECE
Cram Martos	Virginia	Triangularity
De Vescovi	Stefano	IBM
Del Genio	Daniele	CALCEVIVA
Fuenmayor	Neliana	A Transparent Company
Geelhoed	Miriam	MODINT Netherlands
Heller	Bettina	UNEP
Kroft	Ad	Dutch Blockchain Coalition
Lovell	Dorothy	OECD
Mason	Thomas	Organic Cotton Accelerator
Merle	Nicolas	Chain Ops
Merckx	Jan	GS1 Belgium & Luxembourg
Meyer	Judith	OEKO-TEX® Association
Michel	Frank	ZDHC

	Morelli	Chiara	Kering
	Pfeifer	Lina	Global Organic Textile Standard (GOTS)
	Pisani	Maria Teresa	United Nations Economic Commission for Europe (UNECE)
	Rusinek	Melissa	Diverse Recycling Solutions
	Savigliano	Riccardo	UNIDO
	Schneider	Bruno	European BlockTech Federation
	Solinas	Piera Francesca	UNIDO
	Tan	Evonne	Textile Exchange
	Termanowski	Marek	EDUCHAIN
	van Diepen	Frans	Dutch Ministry of Agriculture Nature and Food Quality
	Vogelsteller	Fabian	Lukso Blockchain
	Zeller	Heinz	Hugo Boss