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Blockchain for Traceability and Due Diligence in the Garment and Footwear Industry

Accelerating government action for the SDGs

UN / CEFACT

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11 09I 2019, OECD

Gianni Cipriano per The New York Times

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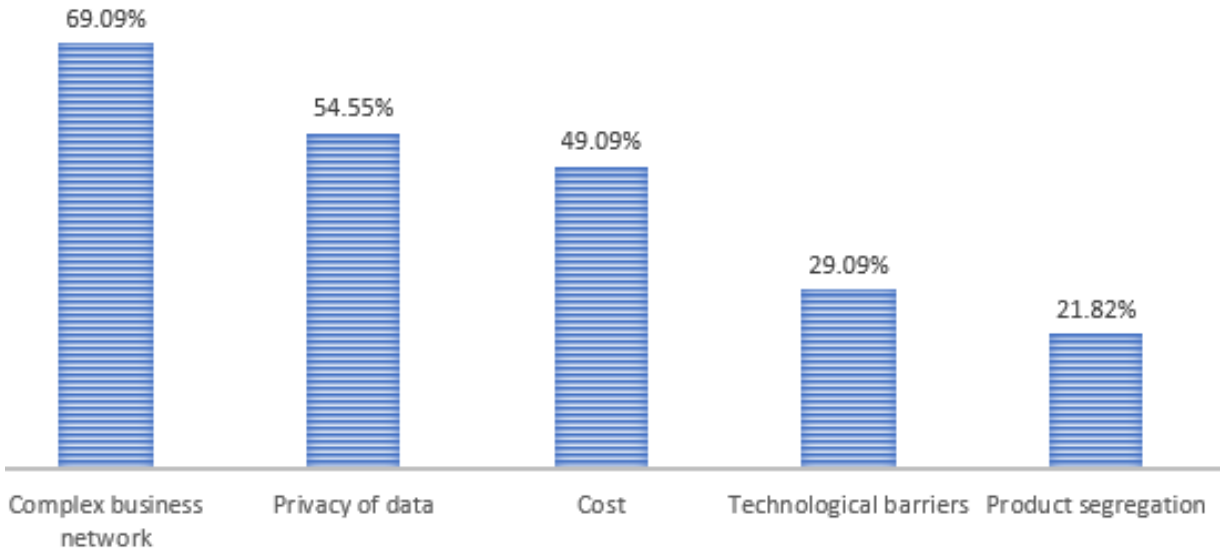
The UNECE exploratory analysis

A **priority** for the industry

Possible **challenges**



Source: UNECE Survey 2018

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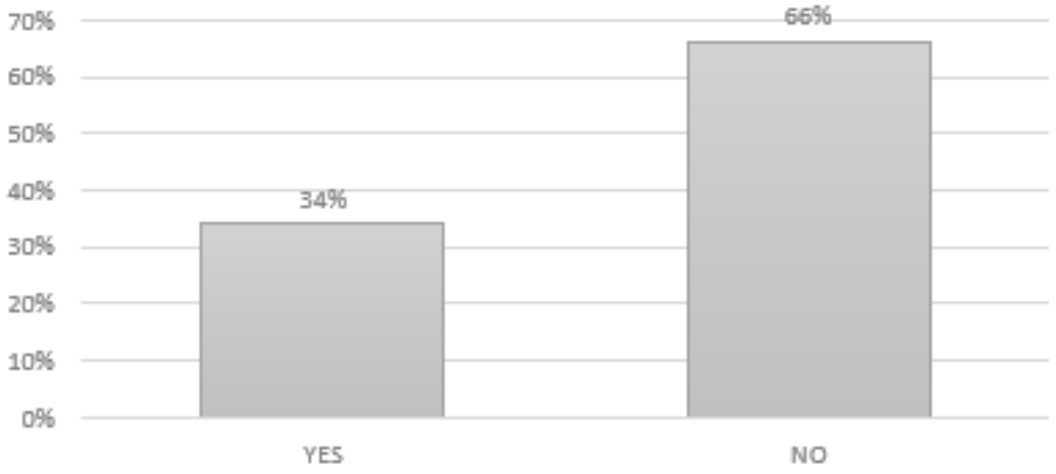
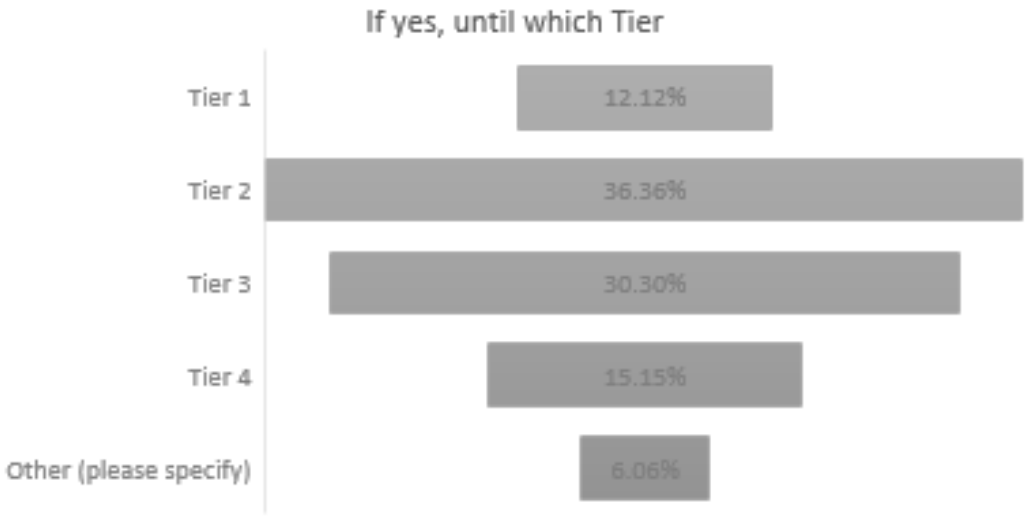
The UNECE exploratory analysis

Does the industry track and trace the value chain?





Tier 1: Final product manufacturing and assembly
Tier 2: Material manufacturing
Tier 3: Raw material processing
Tier 4: Agriculture, farming and extraction

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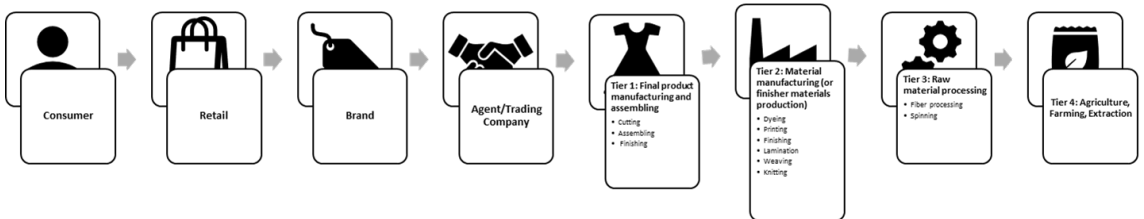
Outcomes stemming from a blockchain traceability application

Retailers can access the blockchain and verify the origin of each input used in manufacturing

Industry regulators can check the data and examine the entire lifecycle process using the digital ledger (i.e facilities inspections)

Consumers can view a product's full journey from field to shelf through QR codes/apps or other sensors (RFID, NFC, IoT)



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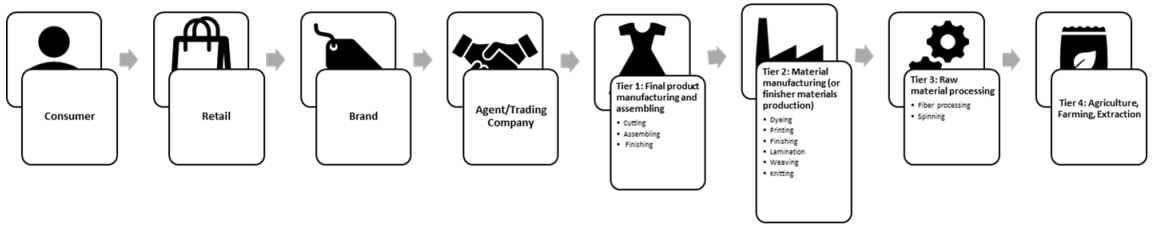
The UNECE pilot project in the cotton value chain

Step 1. Supply Chain Model

Step 2 Data Model

Step 3 Tecnology Model



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Step 1. The Supply Chain Model

Key process elements

1. **Identifying** the raw materials and downstream stakeholders (i.e. the Tier 1 final product manufacturing and assembly, Tier 2 Material manufacturing and Tier 3 Raw materials processing, Tier 4 Agriculture, farming and extraction);

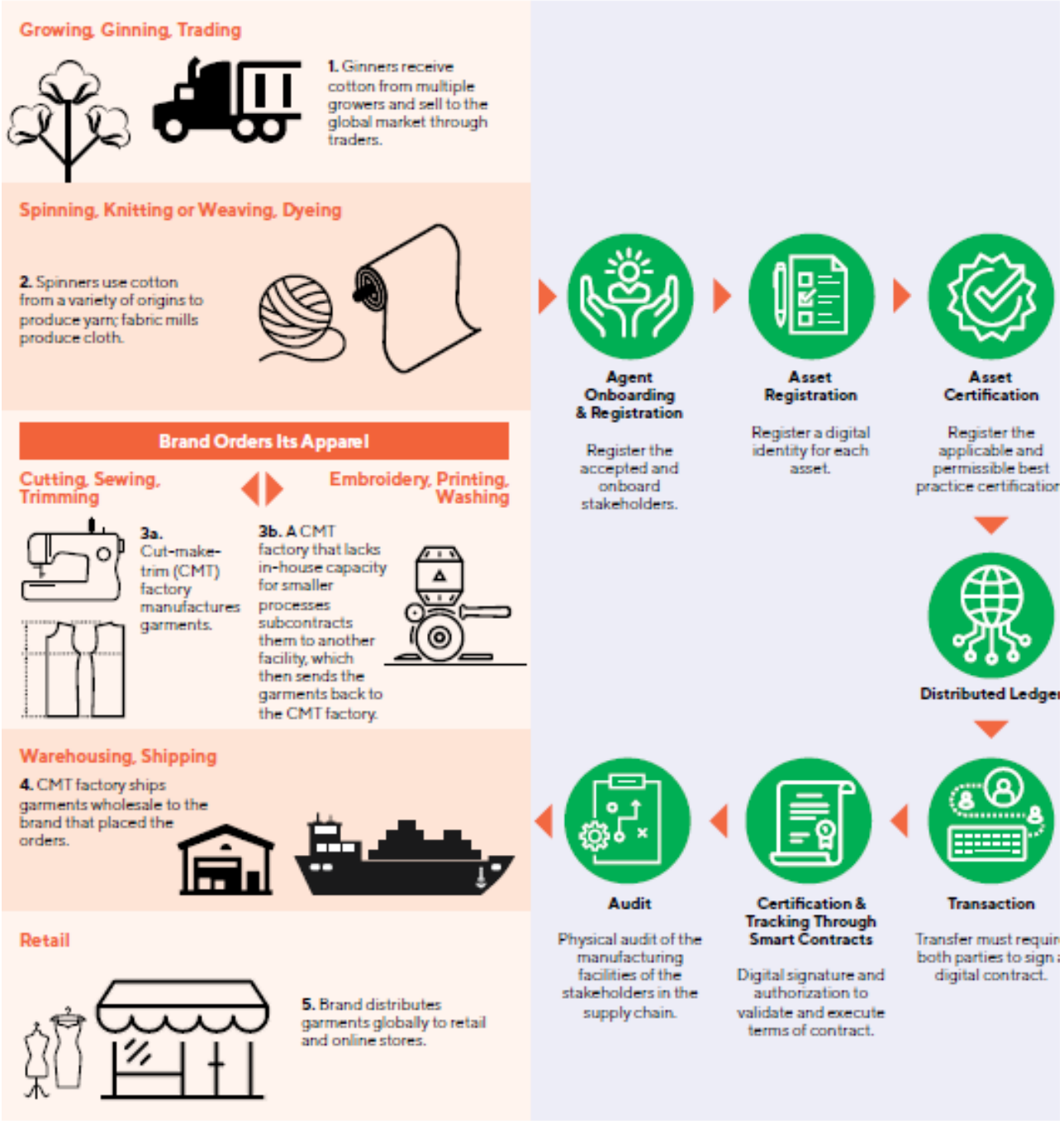
2. **Creating** a map of the identified downstream stakeholders for each product type;

3. **Filtering and selecting** stakeholders to engage in a proof-of-concept pilot implementation;

4. **Defining** the best practices for the selected stakeholders.

Source: UNECE Background Note: Blockchain for Due Diligence in the Garment and Fotwear Sector, Sept 2019

Blockchaining the apparel supply chain (Cognizant, 2018)



Step 3. The Data Model

Key data elements

1. The **business information**:

Party (e.g. farmer, trader, storage, transport, authority), **facility**, **location** (e.g. farm, field, treatment zone, crop, applied treatment, process) **product/ material composition** (used input, field, treatment, characteristics such as quantity, quality), **production, trade** (e.g. dispatch, invoice, order, catalogue)

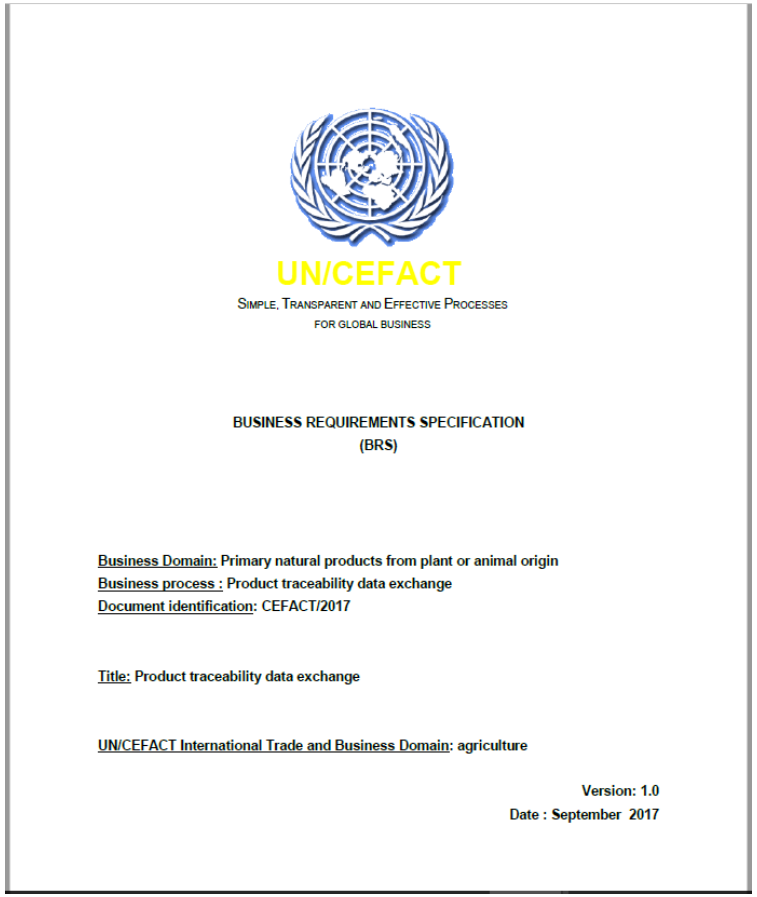
a. Identifiers of party, location and product batch

b. Codelist for characteristics of party, location, product, process

2. The **sustainability requirements**: social/ethical/environmental for internal operations/suppliers/subcontractors

a.Relevant standard and **KPIs**

3. Certification (e.g. party, farm, facility, product and process, storage and transport)



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SIMPLE, TRANSPARENT AND EFFECTIVE PROCESSES FOR GLOBAL BUSINESS

BUSINESS REQUIREMENTS SPECIFICATION (BRS)

Business Domain: Primary natural products from plant or animal origin
Business process : Product traceability data exchange
Document identification: CEFACT/2017

Title: Product traceability data exchange

UN/CEFACT International Trade and Business Domain: agriculture

Version: 1.0
Date : September 2017

Source: UNECE Background Note: Blockchain for Due Diligence in the Garment and Fotwear Sector, Sept 2019

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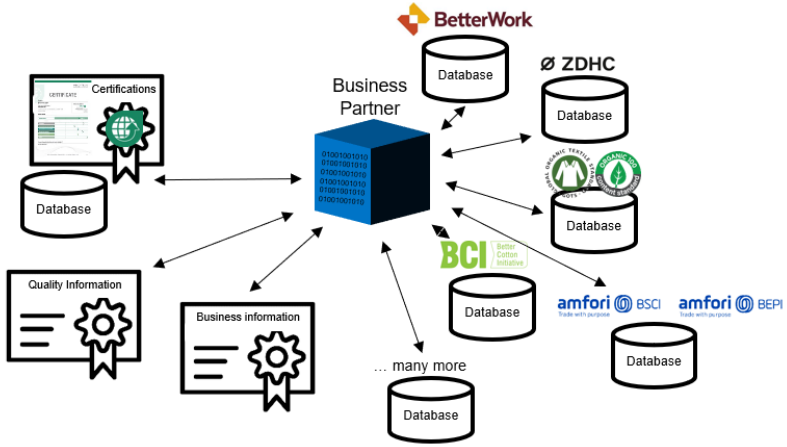
Step 2. The Techology Model

Key steps for apparel VCs

1. **Agent** onboarding and registration
2. **Asset** registration and certification
3. Transaction and registration tracking with **smart contracts** and audit
4. Association of a **digital identifier** that can be used to trace products elements
5. Selection of the **type of Blockchain** (public/private/consortium led)
6. **Audit** of manufacturers' facilities and update of results on the Blockchain



Source: UNECE Background Note: Blockchain for Due Diligence in the Garment and Fotwear Sector, Sept 2019

Interoperability: through the agreement on standards, development of specific implementation guidance and governance policy

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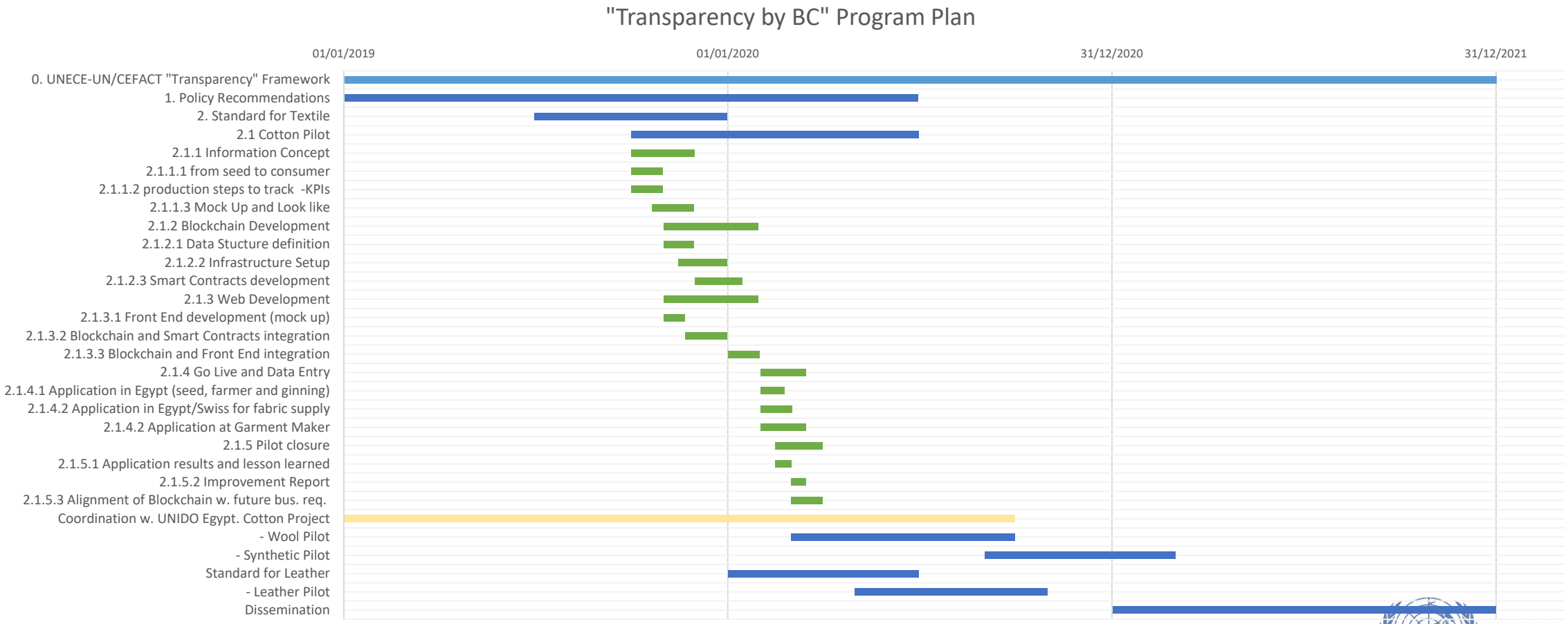
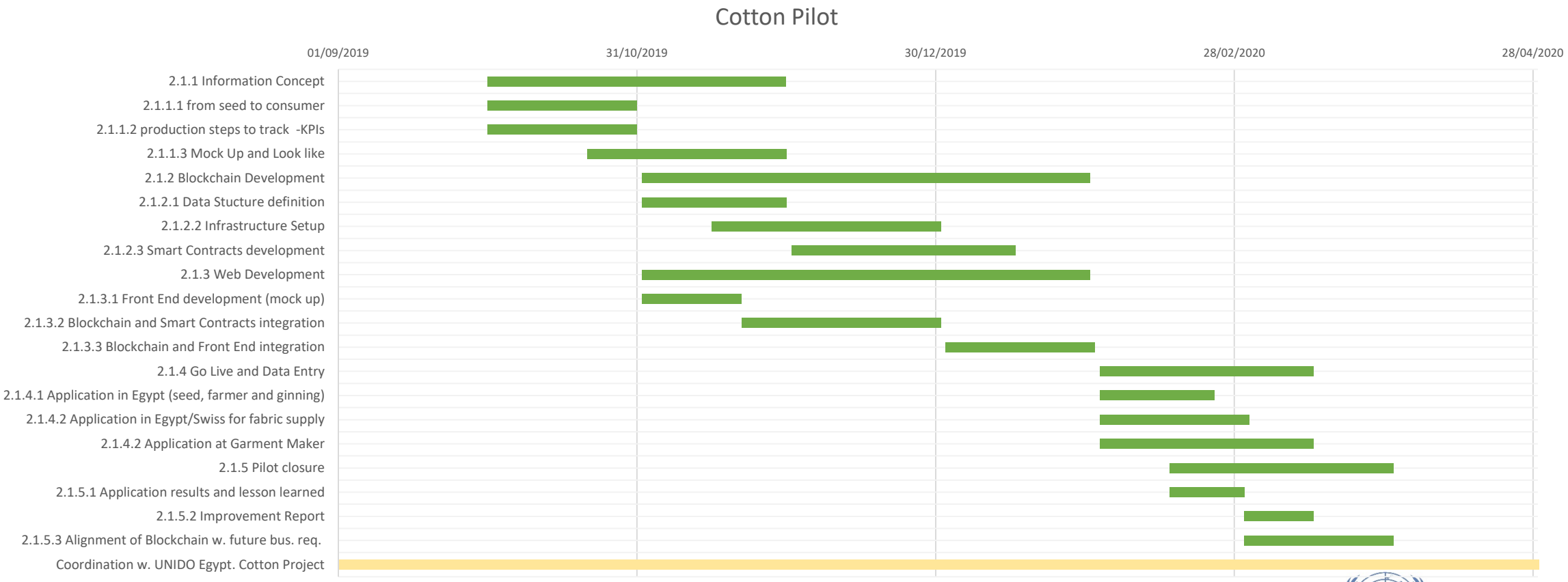
3. UNECE-UN/CEFACT project milestones

UNECE-UN/CEFACT "Transparency and Traceability for Sustainable Textile and Leather Value Chains"



4. UNECE-UN/CEFACT cotton blockchain pilot

UNECE-UN/CEFACT "Transparency and Traceability for Sustainable Textile and Leather Value Chains"



5. Cotton pilot expertise needed

Main Expertise

1. Project Mgmt for international textile project -> SDS SA
2. Cotton: certifications, quality, farming, seeds, contamination -> CRI, CATGO, TE, BCI, Helvetas
3. Certification process for refinement process-> oekostep, GOTS, TE, …
4. Specific chemical mgmt. -> zdhc, …
5. Human rights and labor conditions -> ILO better work
6. Customs knowledge -> amfori, Egyptian customs authorities
7. Supply Chain knowhow -> participating companies e.g. Weba & Filmar
8. Egyptian cotton project integration -> UNIDO

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Recommendations

Which role for public authorities? Building up the necessary ecosystem for engaging all stakeholders

1. Standards definition: develop the necessary supporting common standards on security, privacy and governance as preconditions for accelerating adoption

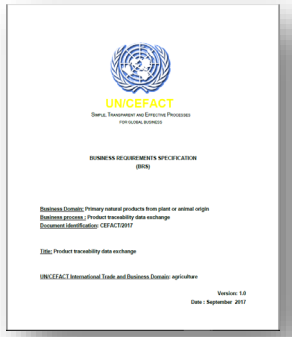
2. Foundational components: to support the utilization of blockchains develop data model for certificates, credentials and distributed identity management

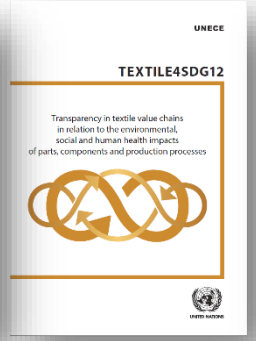
3. Dedicated infrastructure: Set-up the right infrastructure to make easy and fast to help build applications in a cost-effective and interoperable manner

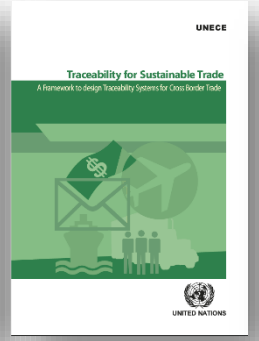
4 Tailored policies and regulations: to support competition and facilitate the connection to other key technological developments, such as AI, IoT, Big Data, Cloud Computing

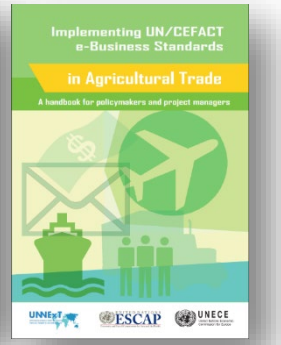
5. Guidance and knowledge sharing: Support investment in education of entrepreneurs, civil servants and the general public

Relevant publications









8 DECENT WORK AND ECONOMIC GROWTH

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

17 PARTNERSHIPS FOR THE GOALS

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Thank you!

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