UNECE

THE SUSTAINABILITY PLEDGE
TRACK IT, TRACE IT, WEAR IT!

SDA Bocconi SCHOOL OF MANAGEMENT
SUSTAINABILITY LAB
MONITOR FOR CIRCULAR FASHION

Funded by the European Union

International Trade Centre
IN COLLABORATION WITH ITC

UNECE-SDA Bocconi Regional Workshop
21-23 September 2021

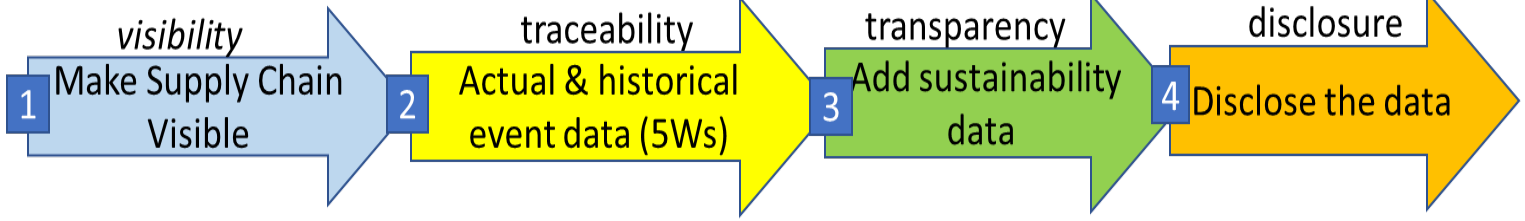
Business Requirements – Data Model – Messages for traceability and transparency

22 SEPT, 2021, 16.00 – 17.30 CEST

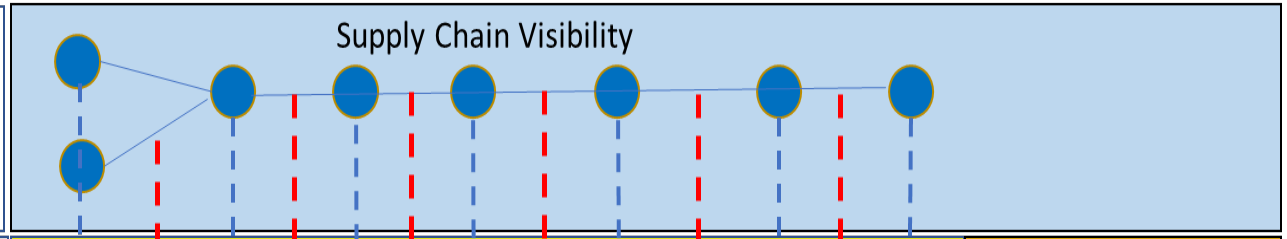
Gerhard Heemskerk,
UNECE Project Expert

Claudia Di Bernardino,
UNECE Project Expert

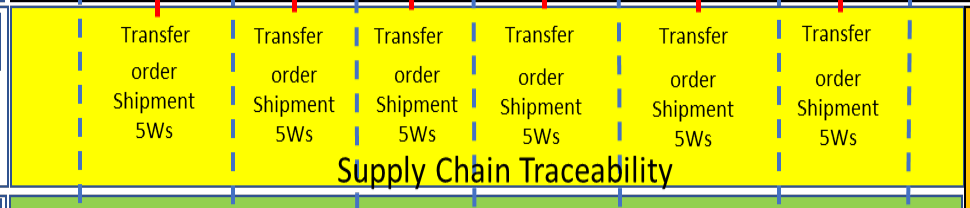
Concepts behind the standard for information exchange



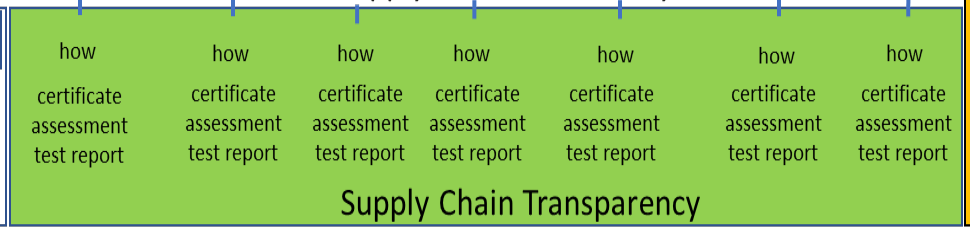
Visibility: who/what/why is in the supply chain 1
Knowing which companies, products / materials and processes the whole supply chain comprises, how they relate to each other.



Traceability: Actual and historical basic data (5Ws) about significant **happenings** regarding **trades, transformations & shipments** of an asset (forward and backward) through specified stages of the supply chain. 2



Transparency: additional **information** regarding the **sustainability performances** of companies regarding the environmental, health, human rights and socioeconomic impacts. 3



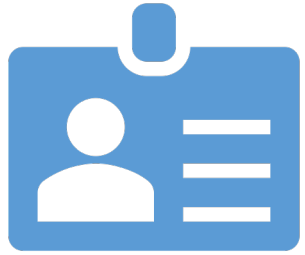
Disclosure: 4
the act of making data about companies, products / materials and/or processes available to trading partners, shareholders, customers, consumers, and regulatory bodies.

Claudia Di Bernardino

What is the difference between supply chain visibility and disclosure?

VISIBILITY

Knowing which companies, products / materials and processes the whole supply chain comprises, how they relate to each other



DISCLOSURE

Making available data of companies, products / materials and/or processes to trading partners, shareholders, customers, consumers, and regulatory bodies

Transparency is about accountability, compliance to sustainability plus the disclosure of information to trading partners, shareholders, customers, consumers, and regulatory bodies

Traceability and transparency information

TRACEABILITY INFORMATION

basic data - 5Ws

Why, Who, What, Where, When

Information on the movement of an asset forward and backward through specified stages of the extended supply chain

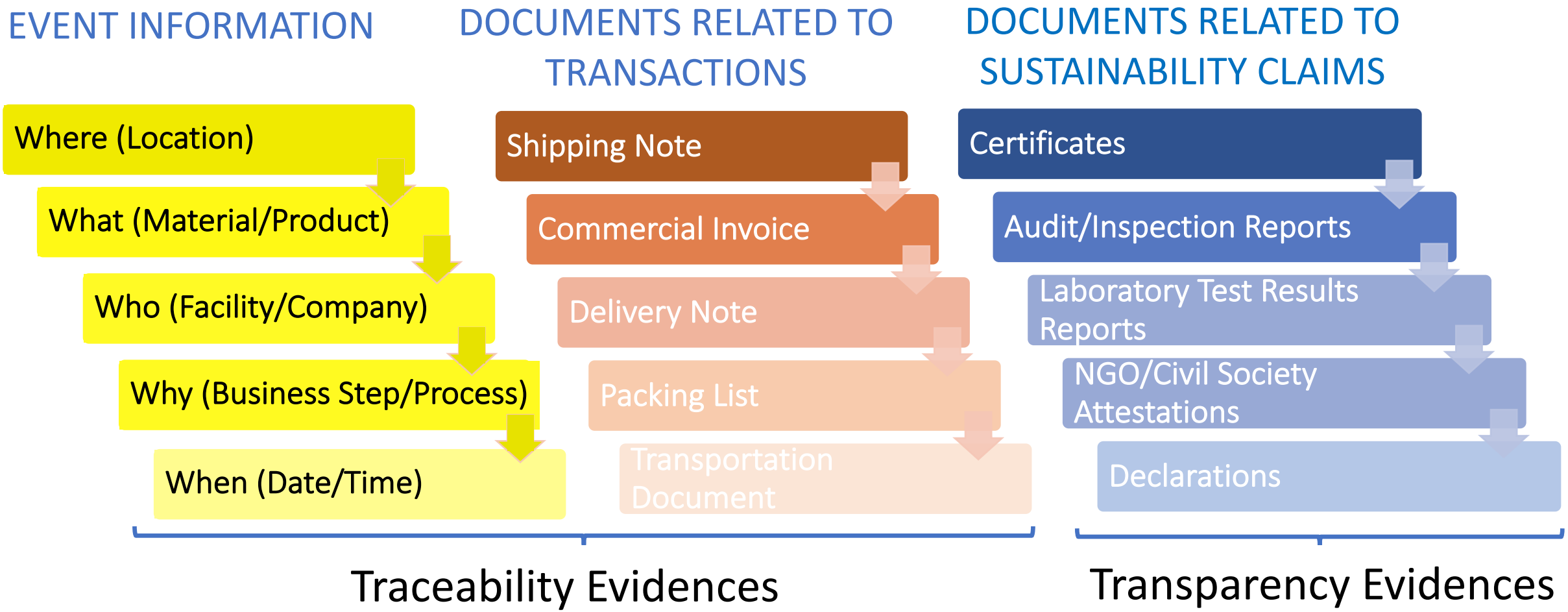
TRANSPARENCY INFORMATION

additional (sustainability) data

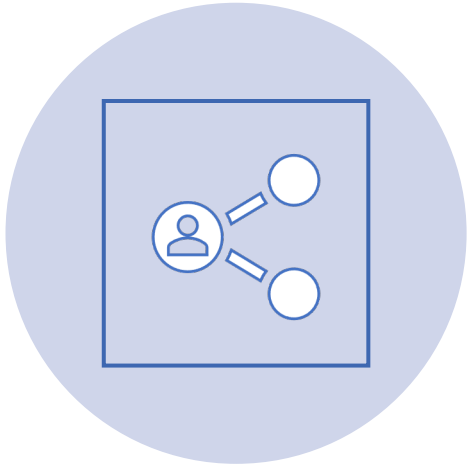
How

Information on sustainability performance of companies, products/materials and/or processes

Evidences of traceability & transparency information

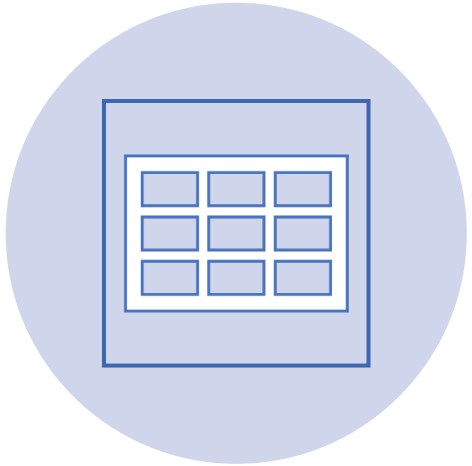


Define what to disclose and to whom



WHO

WILL HAVE ACCESS TO YOUR INFORMATION?



WHAT

TRACEABILITY AND TRANSPARENCY INFORMATION ARE YOU WILLING TO SHARE?

Poll 1: What level of detail do you require for transparency? ***(either from a business/government/consumer perspective)***

a) Only the type of certificates and assessments reports

b) A digital copy of certificates and assessment reports

c) Sustainability performances, meaning all KPI's (easy processable measurements)

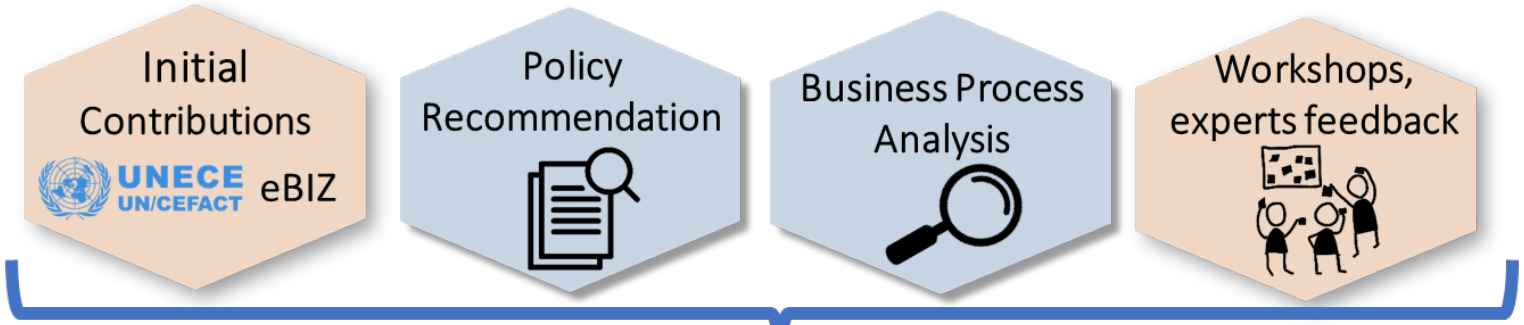
d) All of above grouped by product, product batch, process, production facility, party, location, transportation.

Agenda

Gerhard Heemskerk

- **Business Requirement Specification**
- **Data model and messages**
- **Code Lists and Identifiers**

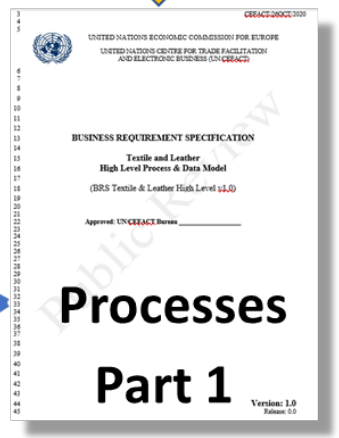
Business Requirement Specification



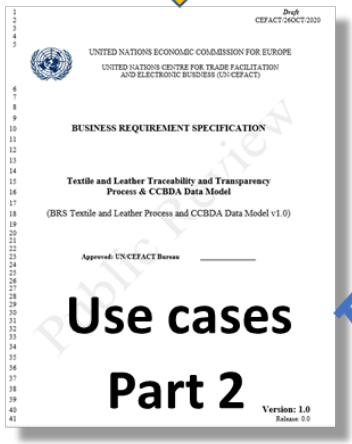
Business **R**equirement **S**pecification (BRS) for Textile & Leather

Textile Value Chain

Leather Value Chain



BRS
Published



Traceability Event Data Exchange

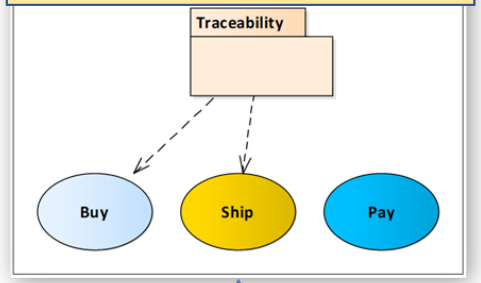
Product Transparency Data Exchange

Business Requirement Specification (content)

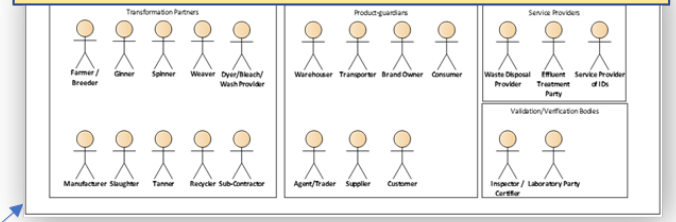
Functional Requirements

2	**Brand Owner**	A person or company who sells any commodity under a registered brand label.
3	**Consumer**	A person who purchases goods and services for personal use.
4	**Customer**	A person or company who buys goods or services from another company.
5	**Dye/Bleach, Wash provider**	A person or company whose trade is the dyeing, bleaching or washing of cloth or other material.
6	**Effluent Treatment Party**	An individual, group, or body having a role in effluent treatment, meaning cleaning industrial effluents, contaminated water from rivers and lakes, and so on in order to reuse the water for additional purposes. Along such lines, water is reutilized and sustained.
7	**Farmer**	A person or company engaged in agriculture business, field crop growing, cattle rearing for the meat or others productions (hides, milk, egg, wool, etc), breeders, raisers, finishers etc.
8	**Ginner**	A person or company who operates a cotton gin machine which separates the seeds and hulls from the cotton fibre.
9	**Inspector / certifier**	A person or company who inspects something, such as a product, process, organization, to ensure that it complies to requirements or regulations.
10	**Laboratory Party**	An individual, group, or body having a role in laboratory observations.
11	**Manufacturer**	A person or company which makes finished products from raw materials or intermediary products in order to make a profit.
12	**Recycler**	A person or company who recycles, or uses machines to recycle.
13	**Retailer**	A person or company that sells goods to the public in relatively small quantities for use or consumption rather than for resale.
14	**Slaughter**	A person or company (slaughterhouse) who slaughters animals, most often to provide food for humans, but also for the skins (hides)

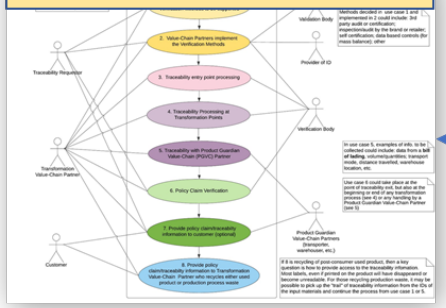
Scope



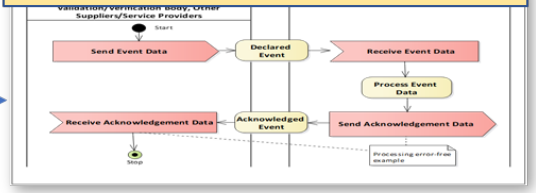
Actors



Processes

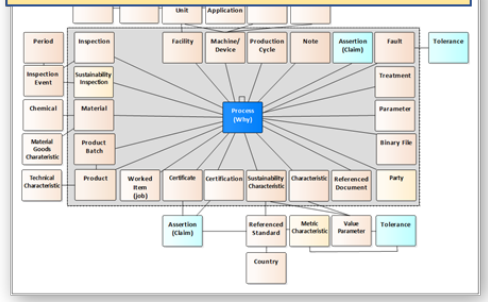


Exchange data (messages)



BRS

Canonical Data Models



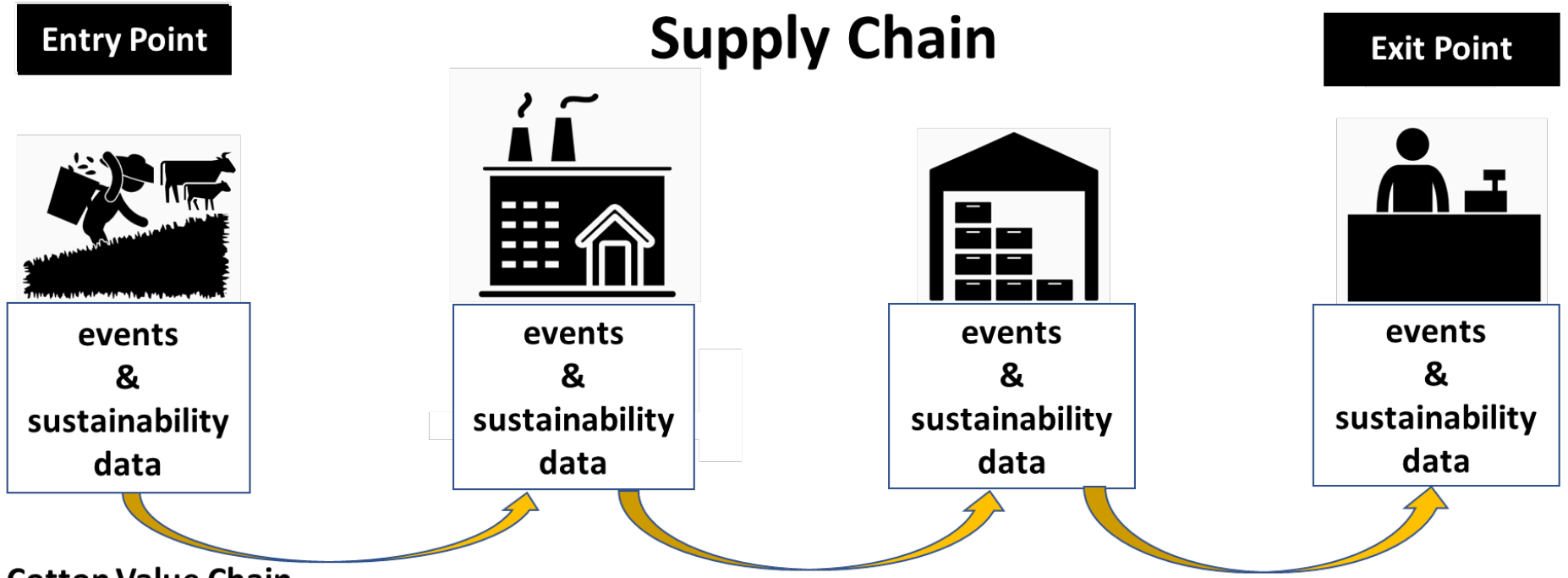
Definitions

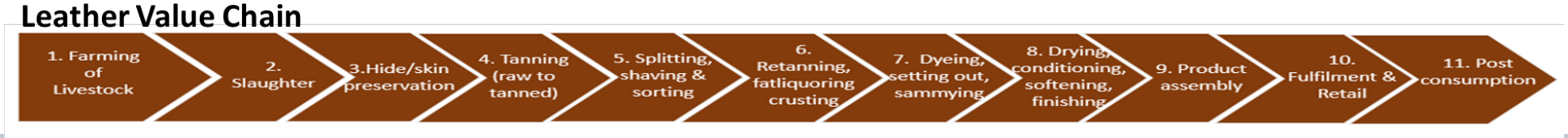
agent trader	<organisation> buys and sells material at different stages of production and may conduct a small operation on the material that does not chemically alter it
aniline leather	<material> leather whose natural *grain* is clearly visible either without a surface coating or with a non-pigmented surface coating NB1: The thickness of non-pigmented surface coating is usually less than or equal to 0.01 mm
basification	<process> mild alkali treatment to ensure completion of *tanning* e.g. treating the mineral tanned stock with a view to forming a large aggregate of metallic compounds and enabling reactive groups of *skins* to complex with tanning material.
Bate	<material> enzymes mixed with an inert carrier used to selectively remove unwanted constituents of *hides* and *skins*.
Acid bate	bate that has optimum activity in the pH range of 3 to 5
alkaline bate	bate that has optimum activity in the pH range of 8 to 8.5
bating	the process of removing unwanted interfibrillary proteins by treating the *hides* and *skins* with bates to obtain soft and pliable leather with a smooth grain surface
beam	<equipment> convex wooden slab sloping downward from about waist height over which a hide is placed for unhairing, trimming off excess flesh and ragged edges and *scudding* by hand knife
brand agent	<organisation> buys and sells finished leather on behalf of brands without any transformation of material

Data Requirements

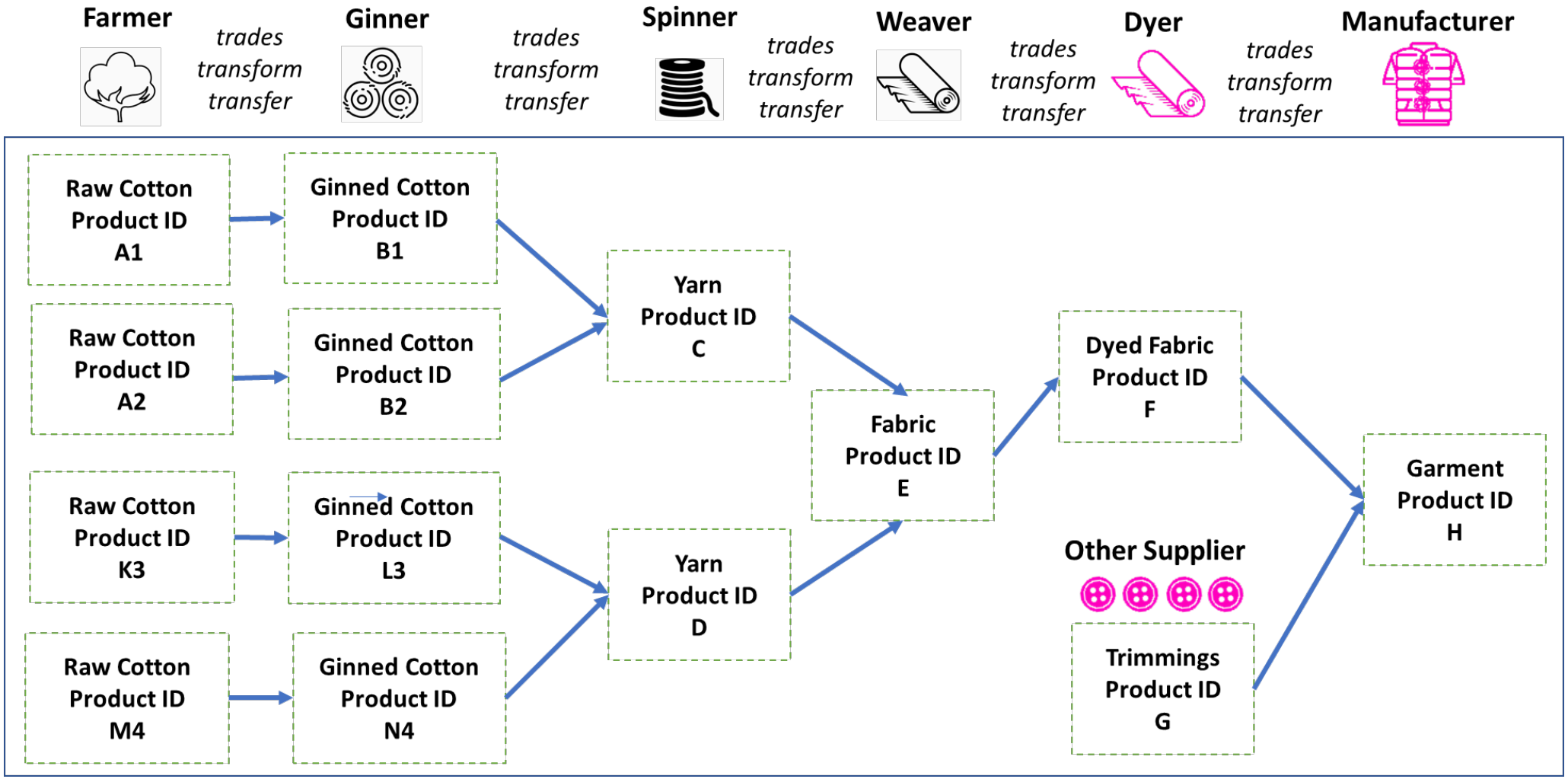
Entity	Organization Characteristic	A prominent attribute or aspect of an organization.		
Attr.	ID	A unique identifier for this organization characteristic.	0	unbounded
Attr.	Type Code	The code specifying the type of organization characteristic.	0	1
Attr.	Description	A textual description of this organization characteristic.	0	unbounded
Attr.	Value Measure	A measure of a value for this organization characteristic.	0	unbounded
Attr.	Value Number	The value, expressed as a number, for this organization characteristic.	0	1
Attr.	Measurement Method Code	The code specifying the measurement method for this organization characteristic.	0	1
Attr.	Condition	A condition, expressed as text, for this organization characteristic.	0	1
Attr.	Value	A value, expressed as text, for this organization characteristic.	0	unbounded
Attr.	Value Code	The code specifying the value of this organization characteristic.	0	1
Attr.	Value Date Time	The value for this organization characteristic expressed as a date, time, date time, or other date time value.	0	1

Need for Supply Chain visibility

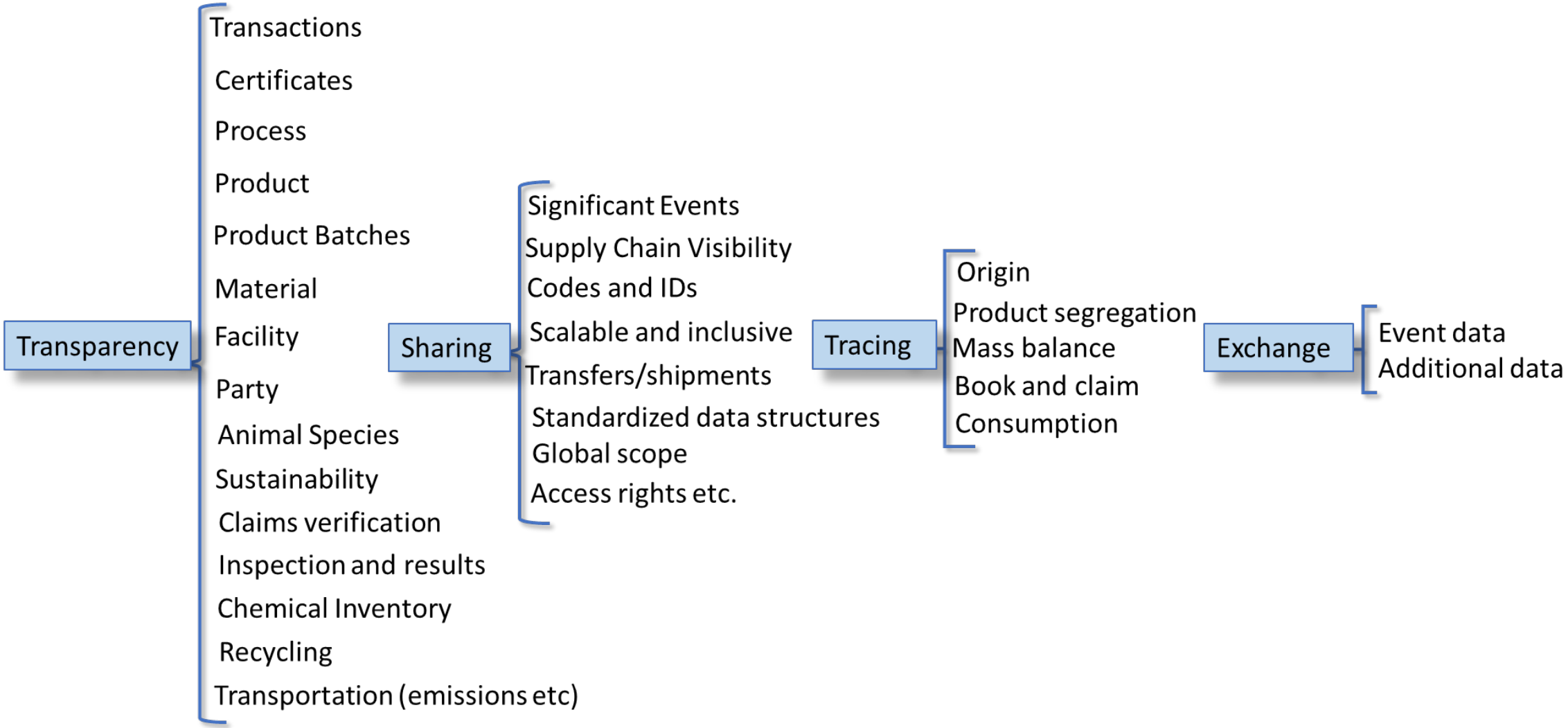




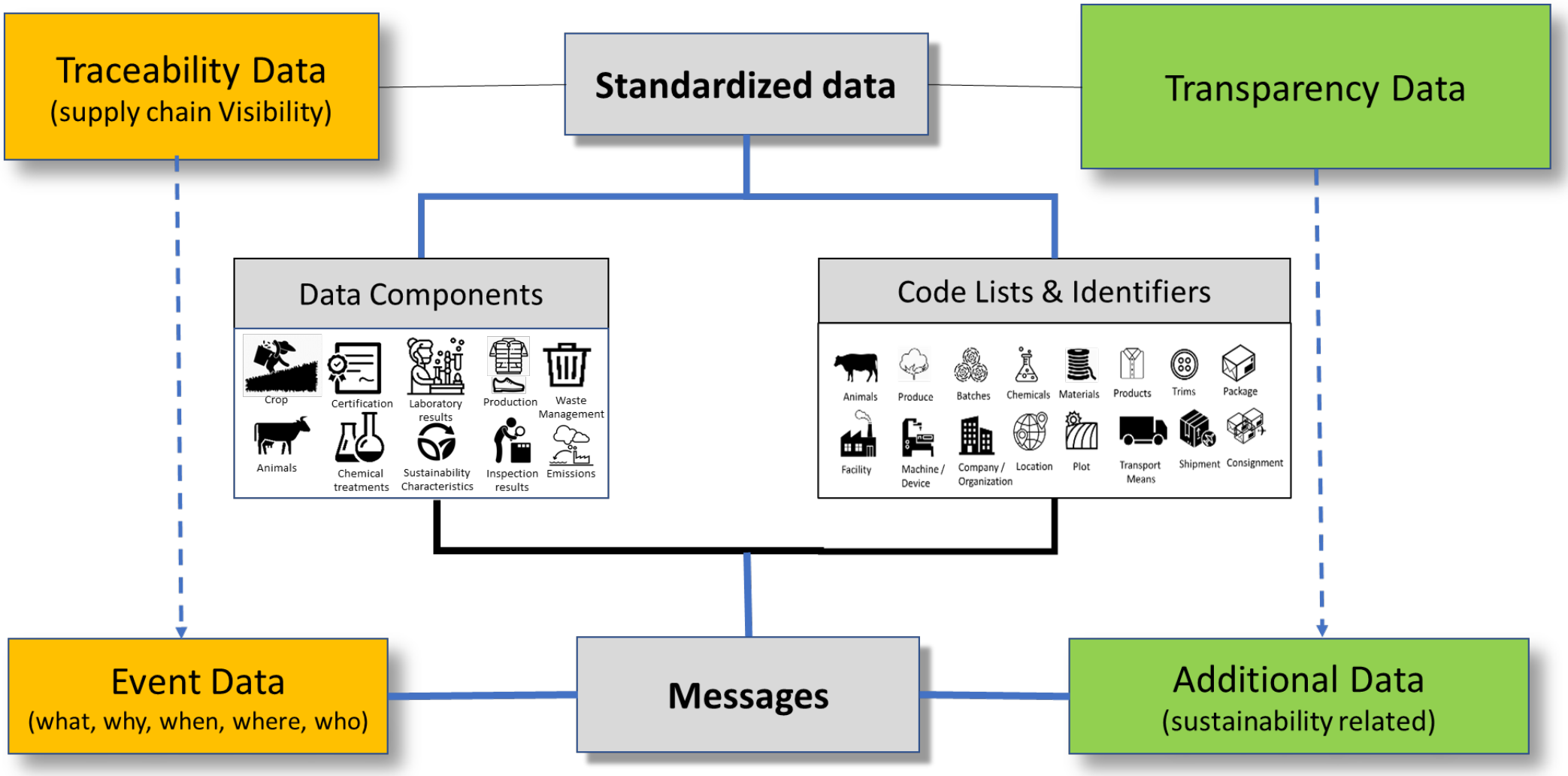
Need for linking all together, building a trace



Need for transparency through tracing and sharing data



Need for exchanging standardized data



Need for sharing data

Event Message

Shared Repository

Event Message

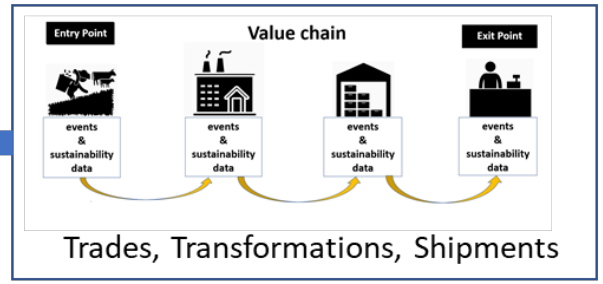
Bilateral

Product Transparency Message

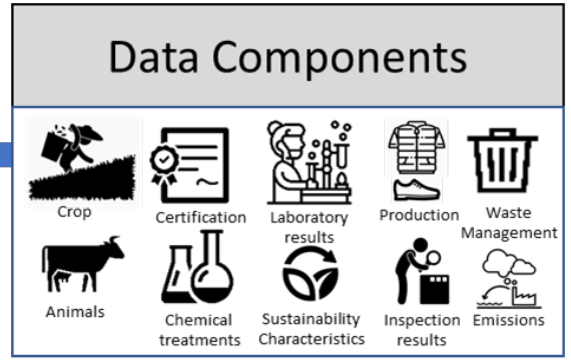
ERP system Business Partners

Information Requestor

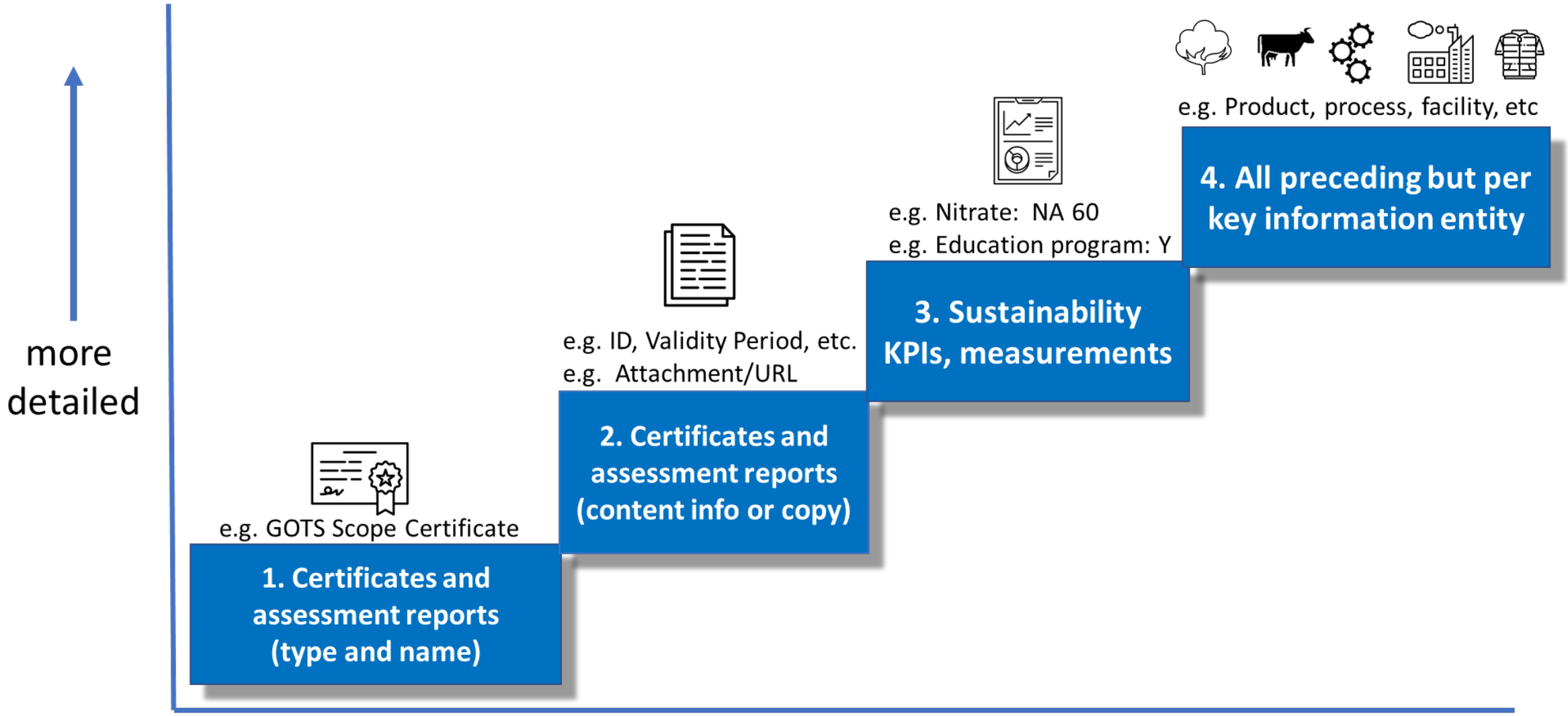
Event Data



Additional data
(sustainability data)



Need for extending transparency data



THE SUSTAINABILITY PLEDGE
TRACK IT, TRACE IT, WEAR IT!

Need for evidence documents supporting a claim

Some transparency evidence documents

Certificate Document

Applicable Certificate	Content
- ID	21342421312
- Type Code	03 – Certificate of Conformity
- Category Code	02 – Product
- Standard Code	01 – GOTS Transaction
- Assurrance Level Code	05 - Certified by Third Party
- Issuer	980912 – Certification Body X
- Certified Party	988291 – Facility X
- Object ID	123232133 – Material Y
- Object Type Code	03 – Product batch
- Object ID	3284983293
- Object Type Code	81 – Shipment
- Issue Date	01 July 2021
- Expiry Date	30 June 2022
- Note	This is an example
- Attachment/URL	DOC / URL

Assessment Report

Applicable Assessment	Content
- Report ID	21342421312
- Type Code	818 – Assessment Report
- Category Code	03 – Organizational Assessment
- Standard Code	91 – Social Assessment
- Name	Social Assessment Brand X
- Self Assessed Indicator	Yes
- Verifier	879823 – Brand X
- Assessor (self assessed)	A78973 - Facility X
- Assurrance Level Code	05 – Verified by Second Party
- Object ID	A78973-1 – Facility X
- Object Type Code	02 – Production Unit
- Report Date	01 July 2021
- Expiry Date	30 June 2022
- Note	This is an example
- Attachment/URL	DOC / URL

Some traceability evidence documents

Trades

- Related Transaction	Content
- ID	234324324
- Type Code	380 – Commercial Invoice
- Attachment/URL	DOC / URL

Transfers (shipments)

- Related Transaction	Content
- ID	234324324
- Type Code	105 – Delivery Note
- Attachment / URL	DOC / URL

Need for providing KPIs, measurements

Sustainability Characteristic *

- Category Code
- Subordinate Category Code
- Type Code
- Subordinate Type Code
- Description
- Value Measure
- Measurement Method Code
- Value Text
- Value Code
- Value Date Time
- Value Indicator
- Value Numeric
- Value Amount
- Value Binary File
- Value Period
- Value Range
- Value Parameter
- Value Tolerance

2027 - Environment
2053 - Soil
800001 – Soil fertility

International Trade Centre

Nitrate Amount
60 NA

60 milligram per kilogram (mg/kg)

Measured Values/KPIs

PDF with value

Analysis report

Textile and leather data model: specific information exchange requirements

Claudia di Bernadino

sustainability focus

data model

Required information exchange

Poll 2: What kind of specific information exchange will be required sooner or later?

(either from a business/government/consumer perspective)

a. Certificate and/or assessments reports

b. Inspection reports

c. Chemical compliance reports

d. Waste disposal and recovery reports

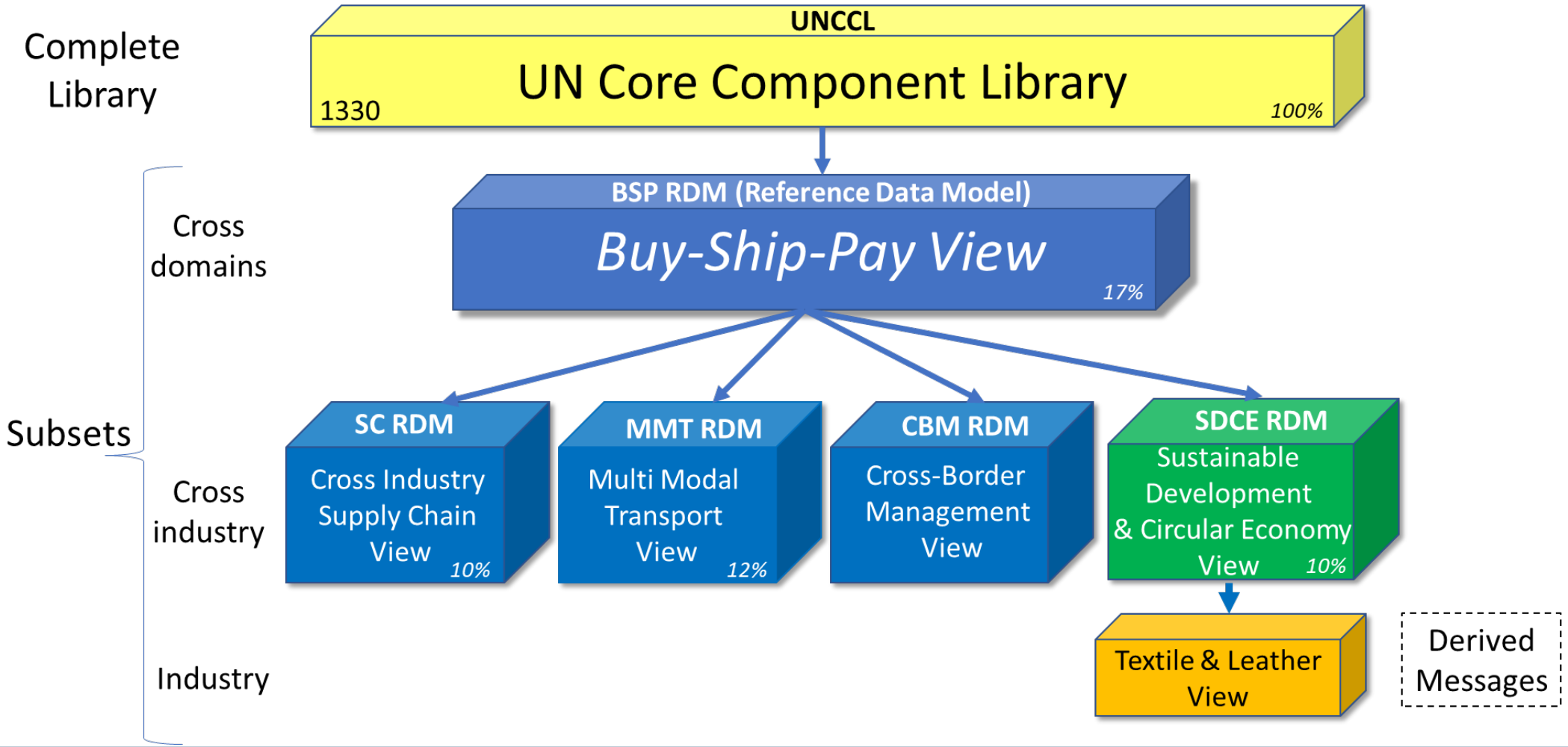
e. Other.....

Agenda

Gerhard Heemskerk

- **Business Requirement Specification**
- **Data model and messages**
- **Code Lists and Identifiers**

Position of the textile and leather data model within the UN Library



Data components available within the textile and leather data model

Sustainability		
Animal Certification	Laboratory Observation Reference	Referenced Standard
Calculated Emission	Material Goods Characteristic	Returnable Asset Instructions
Chemical Treatment	Waste Material Recovery Disposal Process	Sample Observation Result
Compliance Policy	Metric Characteristic	Sample Observation Result Characteristic
Conformance Certificate	Observation Objective Parameter	Specified Action
Corrective Action	Organization Certificate	Specified Inspection
Crop Protection Treatment	Organization Certification	Specified Inspection Result
Disposal Instructions	Organization Characteristic	Specified Material
Distinct Chemical	Preventive Action	Specified Method
Ingredient Range Measurement	Process Certificate	Specified Parameter
Inspection Event	Process Certification	Specified Range
Inspection Instructions	Process Characteristic	Specified Tolerance
Inspection Note	Process Work Item	Supply Chain Inventory
Inspection Person	Product Batch Certificate	Supply Chain Schedule
Inspection Reference	Product Batch Certification	Sustainability Assertion
Inspection Result Characteristic	Product Batch Characteristic	Sustainability Characteristic
Inspection Status	Product Certificate	Sustainability Inspection
Laboratory Observation Analysis Method	Product Characteristic	Toxicological Hazardous Material
Laboratory Observation Contact	Product Finishing Treatment	Trade Product Certification
Laboratory Observation Instructions	Production Waste Component	Transportation Waste Component
Laboratory Observation Note	Production Waste Material	Transportation Waste Material
Laboratory Observation Party	Production Waste Recovery Disposal Process	Transportation Waste Recovery Disposal Process

Product	Agriculture
Product Batch	Agricultural Application
Product Batch Instance	Agricultural Certificate
Product Classification	Agricultural Characteristic
Product Colour	Agricultural Zone Area
Product Label	Animal Batch
Product Print	Animal Certificate
Referenced Product	Crop Plot
Supply Chain Trade Line Item	Crop Produce
Supply Chain Trade Transaction	Crop Produce Batch
Technical Characteristic	Crop Production Process
Trade Product	Field Crop
Trade Product Group	Individual Animal
Trade Product Instance	Species Animal
Trade Transaction	Species Product
Trade Delivery (shipment)	Animal

Production	Generic	Transport
Facility Production Unit	Tax Registration	Logistics Label
Production Cycle	Trade Address	Logistics Location
Production Device	Trade Contact	Logistics Package
Production Facility	Trade Country	Logistics Shipping Marks
Production Machine	Trade Party	Logistics Transport Equipment
Production Process	Event (Traceability)	Logistics Transport Means
Specified Fault	Object Event	
	Transformation Event	
	Aggregation Event	
	Transaction Event	

Sustainability
Product
Production
Transportation
Other (generic)

70% is re-used from UN Library

Starting by using a shared traceability repository

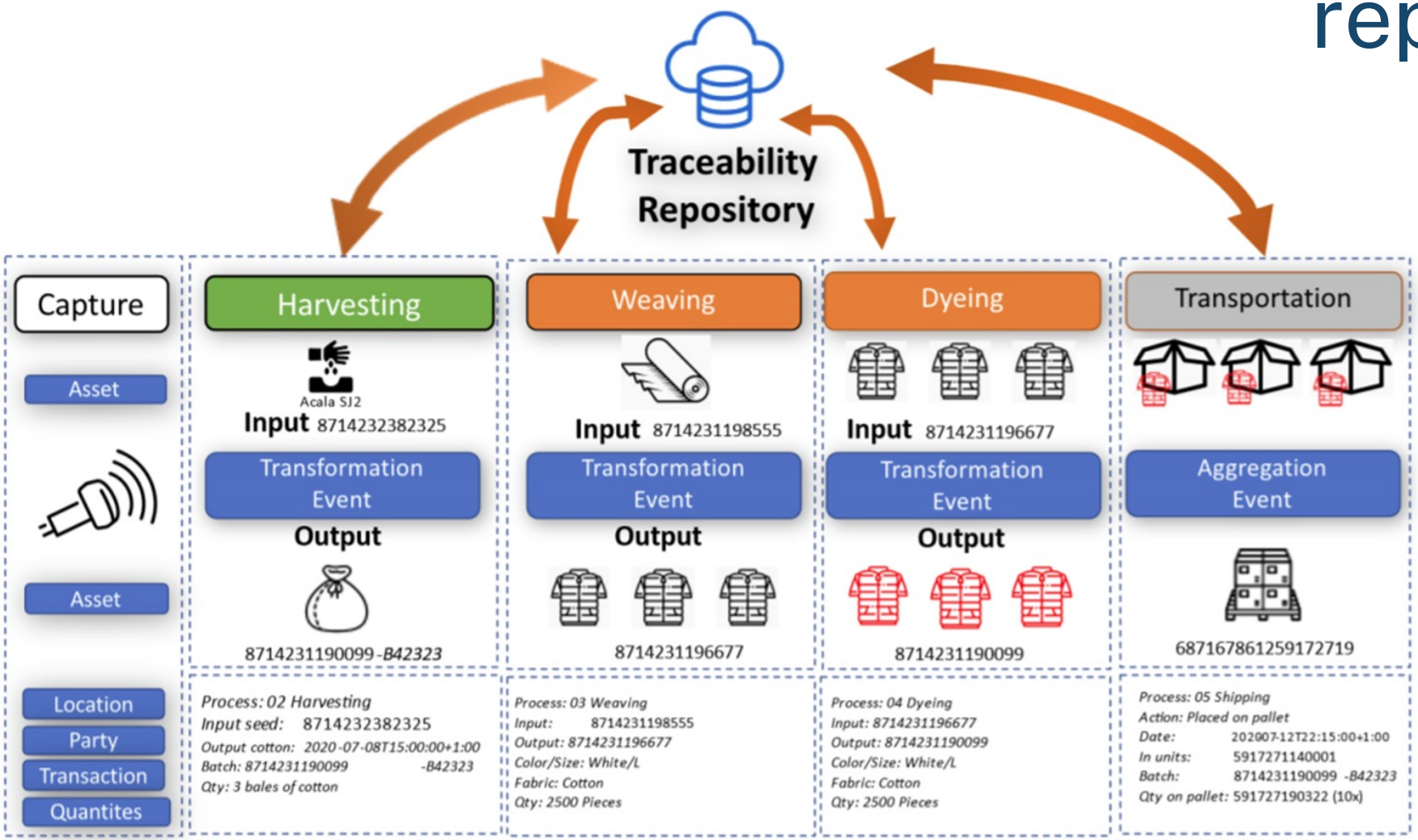
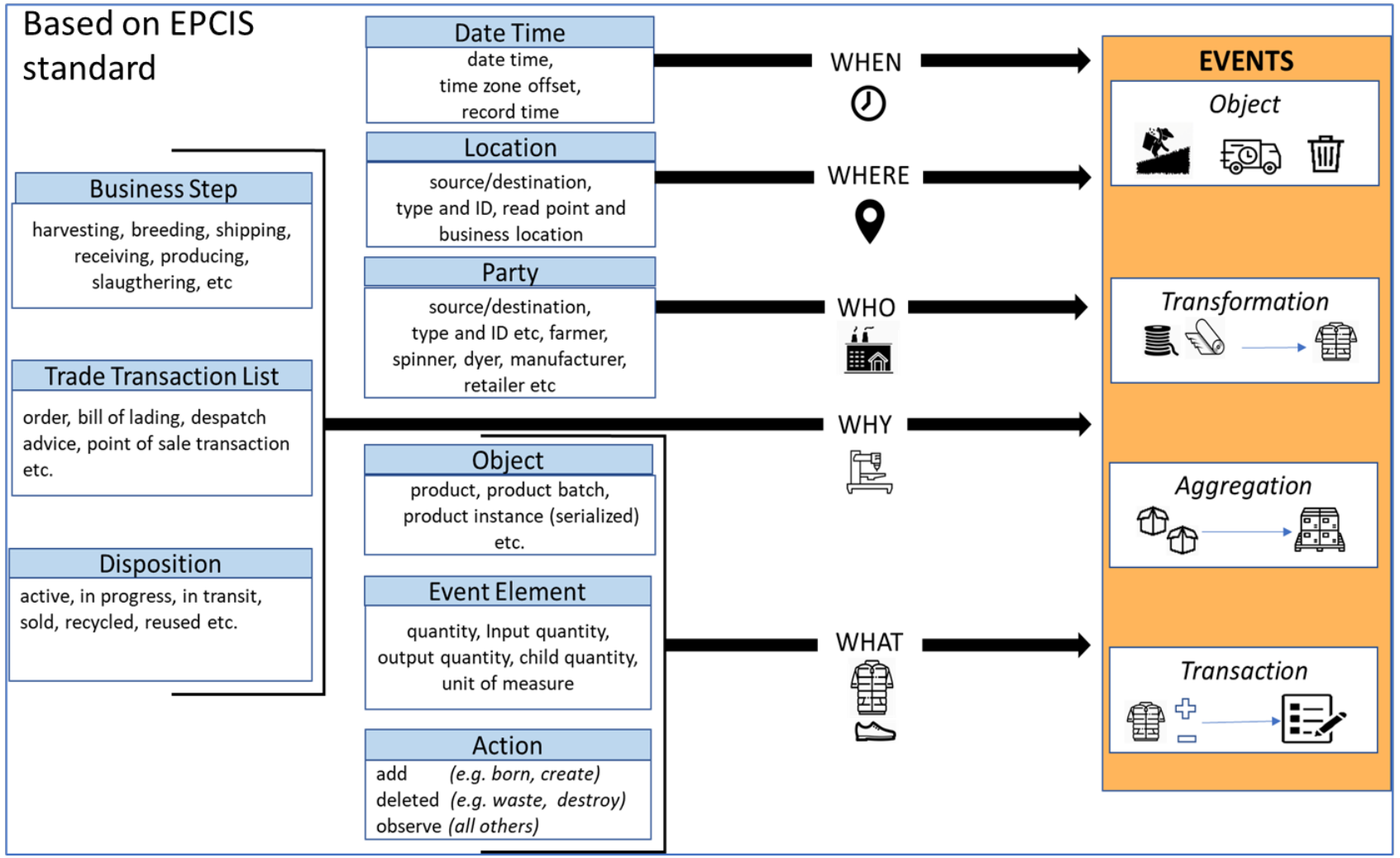
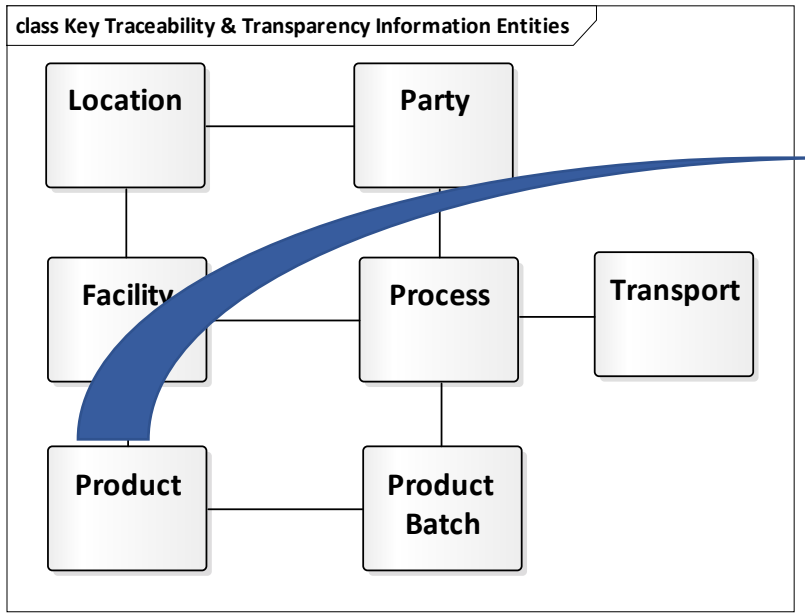


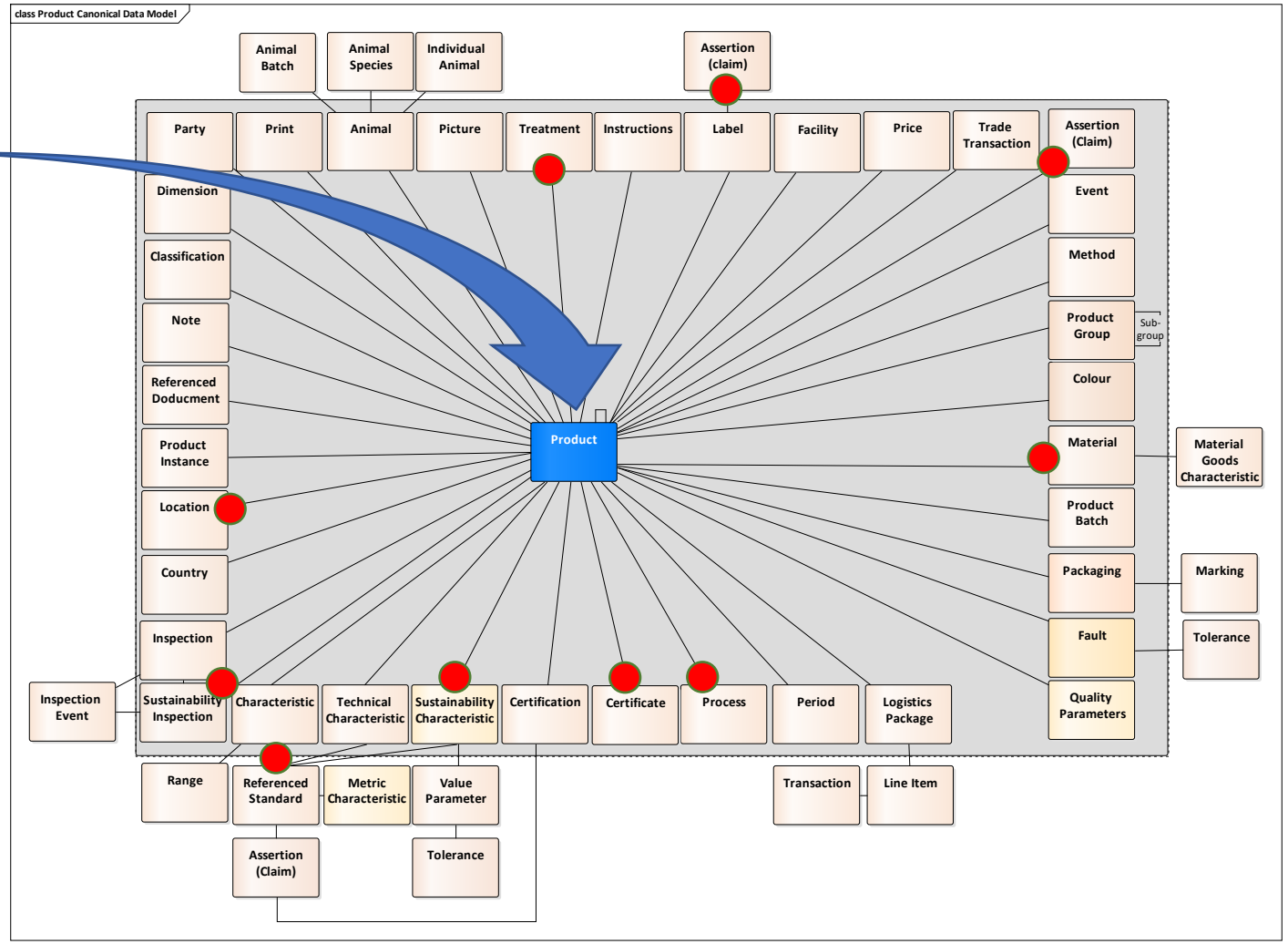
Figure 5-18 A repository for traceability, visibility and sharing

Starting by sharing traceability event data (5Ws)

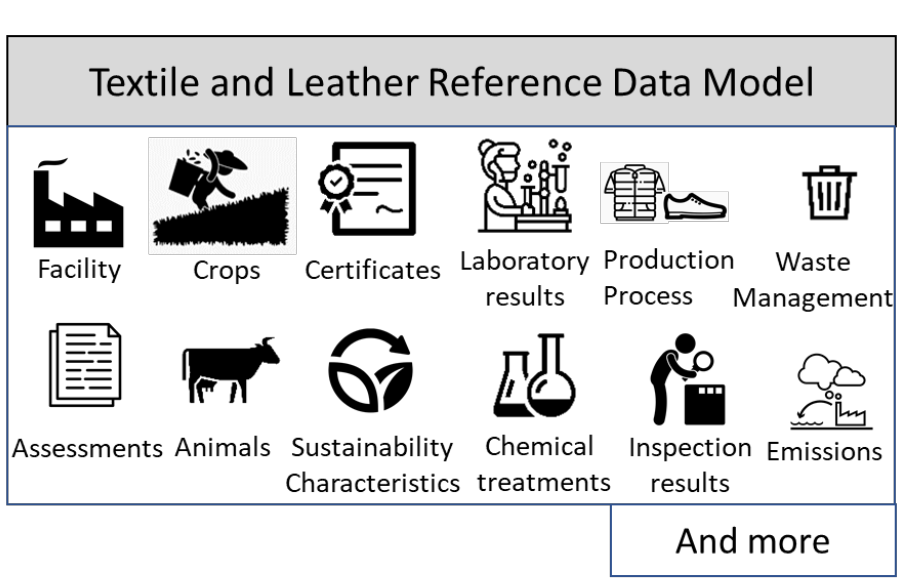


All key data components can carry sustainability data





The product transparency message carrying sustainability data



Product transparency message

- C Trade Product *
  - ID
  - Global ID
  - Name
  - Type Code
  - Batch ID
  - Recycled Indicator
  - Recyclable Indicator
  - Recycled Material Percent
  - Reusable Indicator
  - DNA Marker ID
  - Species Code
  - Individual Product Instance
  - Certification
  - Specified Assessment **
  - Specified Certificate
  - Applicable Period
  - Applicable Sustainability Characteristic
  - Applicable Sustainability Inspection
  - Sustainability Assertion (claim)
  - Related Trade Transaction
  - Applicable Production Process

Extendibility of the product transparency message: data used/not used

PRODUCT

ID
Global ID
Seller Assigned ID
Buyer Assigned ID
Manufacturer Assigned ID
Industry Assigned ID
Digital Platform Assigned ID
EPC ID
Batch ID
Model ID
Variant ID
Collection ID
Product Group ID
DNA Marker ID
Print Design ID
Tracking System ID
Regulation Conformity ID

Status Code
Collection Status Code

Line
URI ID
Name
Trade Name
Model Name

Brand Name
Sub-Brand Name
Brand Range Name

Description Code
Description
Variant Description
Function Description
Use Description
Additional Description
Print Design Description

Type Code
Type Description
Subordinate Type Code
Subordinate Type Description
End Item Type Code
End Item Name

Species Code
CITES Species Code

Net Weight
Net Volume
Gross Weight
Gross Volume
Season Description
Season Code

Included Product Type Quantity

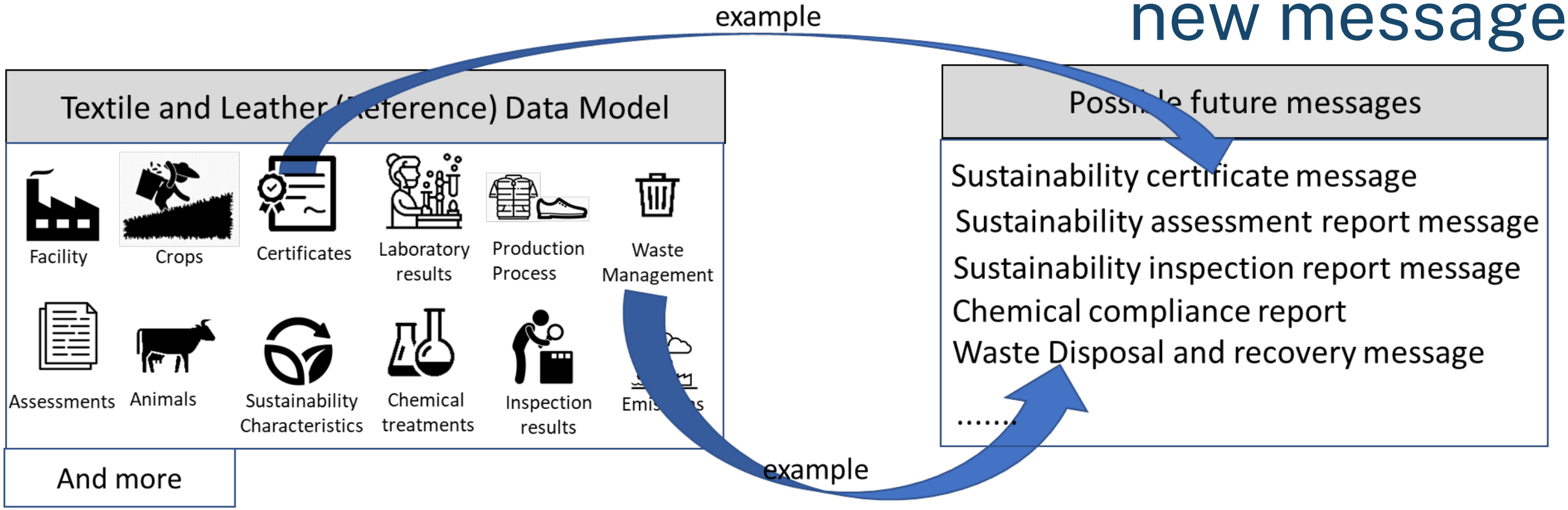
Quality Level. Code
Recycling Type Code
Recycled Material Indicator
Recycled Material Percent
Recyclable Indicator
Reusable Indicator
Biologically Based Indicator
Life Cycle Stage Code

Links

Specified Assessment
Specified Certificate
Component Material
Finishing Treatment
Chemical Treatment
Sustainability Characteristics
Sustainability Inspection
Disposal Instructions
Sustainability Assertion (Claim)
Product Label
Related Transaction
Production Facility
Production Process
Subcontractor Party
Product Classification

And more

Creating a new message means selecting the needed data components & elements for the new message



A common standard for information exchange

Claudia di Bernadino

Common = agreement on:

Processes	to provide the necessary information for traceability and transparency
Data Structure	to be exchanged - message content, code list and identifiers

Poll 3: Which is the main obstacle of introducing a common standard for garment and footwear sector?

a) Insufficient perceived benefits

b) Lacking interoperability between different solutions conflicts with the high dynamicity of them to businesses relationships

c) Differences at the business level, including not only the content of data messages but also the organisation of business processes

Agenda

Gerhard Heemskerk

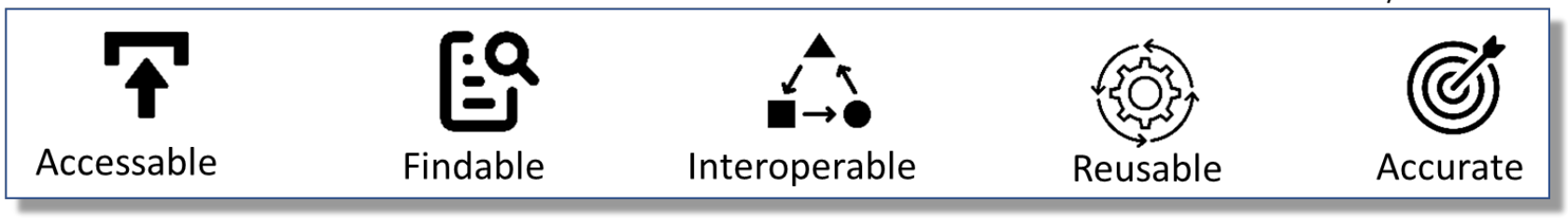
- **Business Requirement Specification**
- **Data model and messages**
- **Code Lists and Identifiers**

Code lists and identifiers

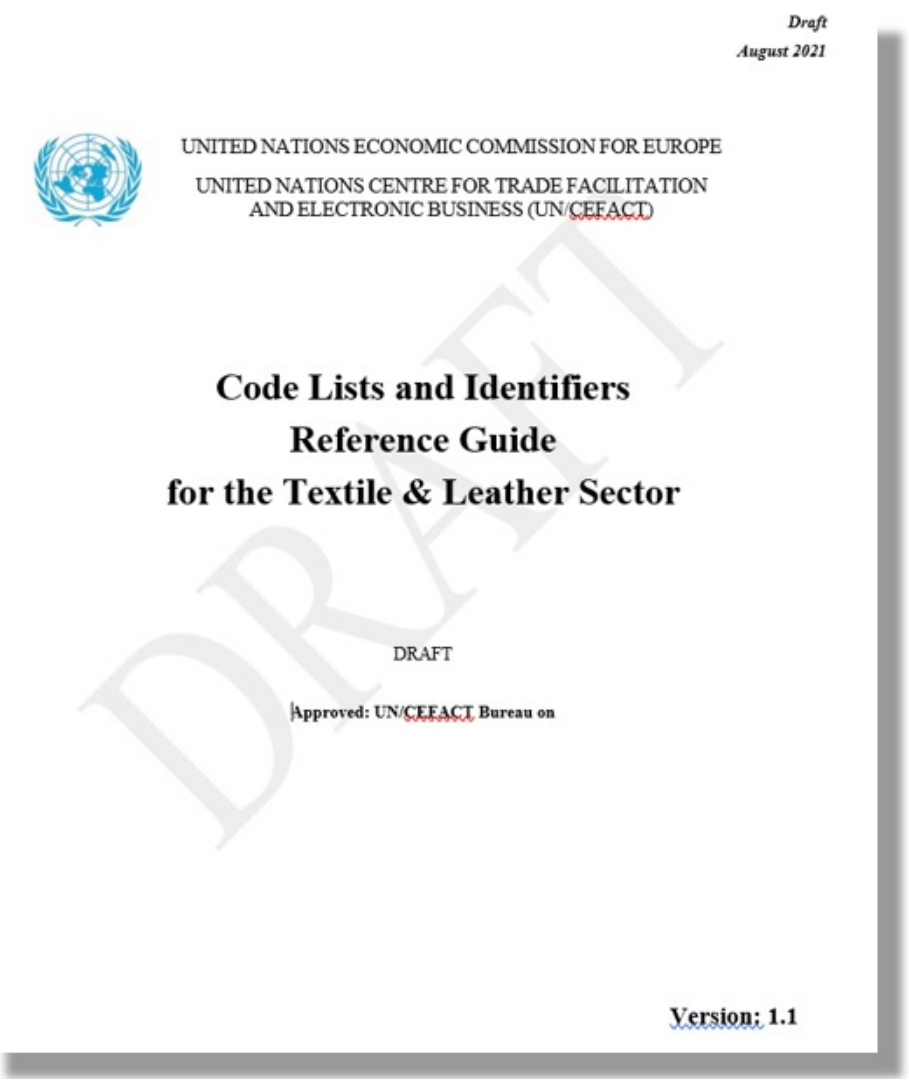
Codes and identifiers are essential components of any Machine-To-Machine information flow. They have been developed over time to facilitate the flow of standardized data.

- **Benefits of using codes and identifiers?**
  - Easy validation for correctness to ensure consistent semantics.
  - Improved communication with business partners.
  - Improved interoperatbility, processing of information by computer systems or software.
  - Improved comparability of information.
  - Avoiding duplicity of items.

ISO/IEC 15459



Code Lists and Identifers Reference Guide



Draft
August 2021

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

UNITED NATIONS CENTRE FOR TRADE FACILITATION AND ELECTRONIC BUSINESS (UN/CEFACT)

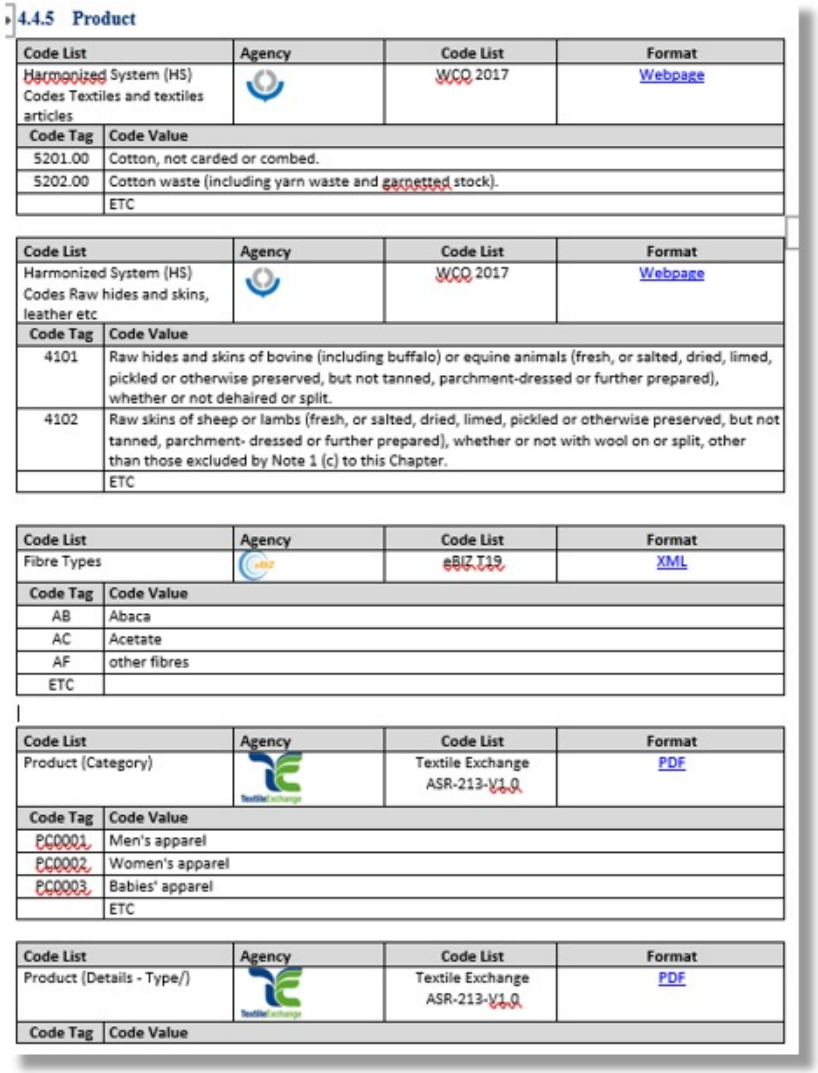
Code Lists and Identifiers
Reference Guide
for the Textile & Leather Sector

DRAFT

Approved: UN/CEFACT Bureau on

Version: 1.1

DRAFT



4.4.5 Product

Code List	Agency	Code List	Format
Harmonized System (HS) Codes Textiles and textiles articles		WCO 2017	Webpage

Code Tag	Code Value
5201.00	Cotton, not carded or combed.
5202.00	Cotton waste (including yarn waste and garnetted stock).
	ETC

Code List	Agency	Code List	Format
Harmonized System (HS) Codes Raw hides and skins, leather etc		WCO 2017	Webpage

Code Tag	Code Value
4101	Raw hides and skins of bovine (including buffalo) or equine animals (fresh, or salted, dried, limed, pickled or otherwise preserved, but not tanned, parchment-dressed or further prepared), whether or not dehaired or split.
4102	Raw skins of sheep or lambs (fresh, or salted, dried, limed, pickled or otherwise preserved, but not tanned, parchment- dressed or further prepared), whether or not with wool on or split, other than those excluded by Note 1 (c) to this Chapter.
	ETC

Code List	Agency	Code List	Format
Fibre Types		eBIZ T19	XML

Code Tag	Code Value
AB	Abaca
AC	Acetate
AF	other fibres
ETC	

Code List	Agency	Code List	Format
Product (Category)		Textile Exchange ASR-213-V1.0	PDF

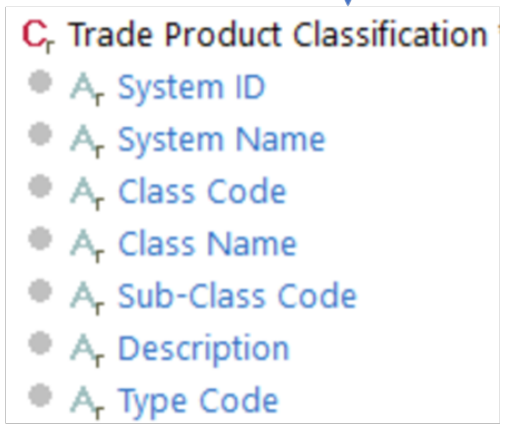
Code Tag	Code Value
PC0001	Men's apparel
PC0002	Women's apparel
PC0003	Babies' apparel
	ETC

Code List	Agency	Code List	Format
Product (Details - Type/)		Textile Exchange ASR-213-V1.0	PDF

Code Tag	Code Value

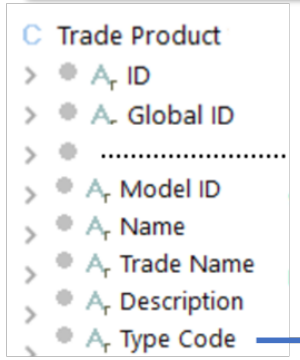
Product Classification: flexible in the data model

Product/Raw Material Classification



HS Codes WCO	5201.00	Cotton, not carded or combed.
	6205.20	Men's or boys' shirts of cotton
	4101.20	Whole hides and skins, unsplit, of a weight ....
	4203.30	Belts and bandoliers
GPC GS1	10001352	Shirts/Blouses/Polo Shirts/T-shirts - Cotton Fibre
Textile Exchange	PD0005	Shirts, blouses
	PD0031	Belts
	RM0218	Acetate
	PD0093	Rawhide

Product Type



Abaca

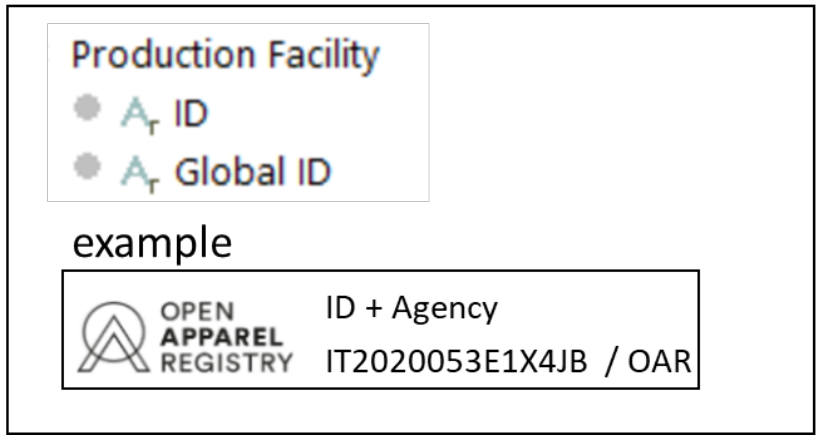
Code AB / Agency Ebiz

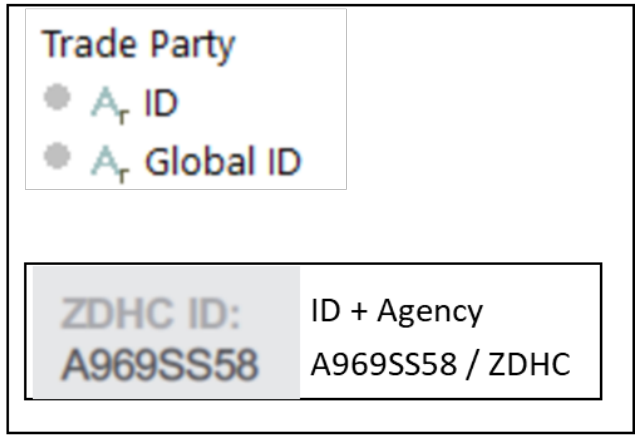
Textile Exchange made a mapping of their classification to WCO HS codes

Cotton fibers	– Lint cotton	– 5203
	– Raw fibers	– 530110-30, 5302, 5303, 5305
	– Raw silk	– 5002
Fabrics	– Non-woven fabrics	– 5601-03
	– Special fabrics	– 5801, 5803-06, 5809-10, 59
	– Leather	
	– Bonded leather	– 4107, 4112-14
		– 4115

Identifiers: flexible in the data model

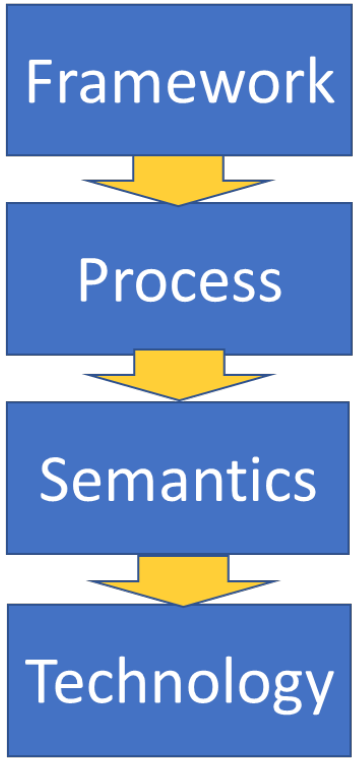
Product	Own		ID	Seller/Buyer/Industry/Manufacturer assigned ID/Other
	GS1	Global ID	GTIN	Global Trade Item Number*
	GS1	Global ID	SGTIN	Serailized Global Trade Item Number*
Facility	Own	ID		
	GOV	Global ID	VATIN	Value Added Tax Identification Number
	OAR	Global ID	OAR ID	Open Apparell Coalition Identifier
	GS1	Global ID	GLN	Global Location Number*
Party	Own	ID		
	GOV	Global ID	VATIN	Value Added Tax Identification Number
	GS1	Global ID	GLN	Global Location Number*





Key points

1	PART OF INTERNATIONAL SUPPLY CHAIN MODEL (BSP)
2	CROSS INDUSTRY APPLICABLE
3	GLOBALLY APPLICABLE
4	FOR SME & LARGE ENTERPRISES
5	BASED ON STANDARDS
6	SUPPORTING TRACEABILITY
7	SUPPORTING SUSTAINABILITY TRANSPARENCY
8	SUPPORTING CODE LISTS (CROSS/INDUSTRY SPECIFIC)
9	TECHNOLOGY INDEPENDENT
10	CUSTOMIZABLE INFORMATION SETS



UNECE-SDA Bocconi Regional Workshop
21-23 September 2021

THANK YOU
JOIN THE SUSTAINABILITY PLEDGE

thesustainabilitypledge.org

Gerhard Heemskerk, UNECE Project Expert

Claudia di Bernadino, UNECE Project Expert