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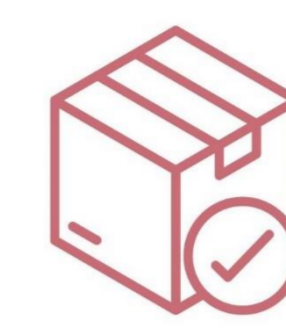
## BACKGROUND

The textile sector is undergoing a set of transformations to shift to a circular model. Within the framework of the TRICK project, an innovative approach to traceability and sustainability in textile supply chains has been developed.

Table 1 SWAT analysis of the current situation of traceability approaches for the textile value chain

STRENGTHS		WEAKNESSES	
MOTIVATIONS	CHALLENGES	OPPORTUNITIES	THREADS
<ul style="list-style-type: none"> <li>The Sustainable Development Goals (SDGs) launched by the Agenda for Sustainable Development</li> <li>Traceability as key enabler for sustainability, assuring accessibility to accurate and reliable information for the reliability of sustainability claims</li> <li>Green claims validation and anti-counterfeiting efforts</li> </ul>	<ul style="list-style-type: none"> <li>Sector fragmentation, opacity, and complexity of the textile supply chain,</li> <li>High environmental and social impacts</li> <li>Limited transparency and data sharing due to the fear among stakeholders about sharing sensitive or confidential information</li> <li>Adapting to certification schemes and addressing harmonization in data metrics and procedures</li> <li>Enhancing intrinsic sustainability, including the control of all the external stockholders</li> <li>Reluctance to technological and organizational changes</li> </ul>	<ul style="list-style-type: none"> <li>Upcoming EU legislative will drive innovation in supply chain mapping, traceability, and verification.</li> <li>Emerging technologies such as Blockchain, IoT, RFID, NIR, XRF, and AI</li> <li>Increasing awareness of the environmental impact of the post-consumer phases and demand towards environmentally and socially responsible products.</li> <li>Addressing environmental and social challenges</li> </ul>	<ul style="list-style-type: none"> <li>Lack of Harmonization and Standardization in data collection and sharing</li> <li>Consumer mistrust</li> <li>Limited availability of trustworthy and reliable data sources</li> <li>Lack of traceability tools that cover the entire product lifecycle from a sustainability and circularity perspective</li> <li>Greenwashing accusations</li> <li>Regulatory Pressure</li> </ul>
ENABLERS	BARRIERS	OPPORTUNITIES	THREADS

## APPROACH



**Public data structures** to describe and prove the **daily operations** based on the classical **EDI-like** approached of **eBIZ specification** for despatch and receiving advices, catalogs, orders, and commission orders



**eBIZ enriched** version based on the **UNECE** data structures for **Traceability reporting**, implementing the **GS1 EPCIS** event-based model for describing the history of goods



eBIZ implementation of a **Transparency and Sustainability Report** designed for **data collection** to **support the declarations** that each company exchanges with the platform to fuel sustainability assessment schema as PEF, SA8000 being used for the TRICK business services



## OUTCOMES

A **Traceability Report** for the data collections on the events is the TRICK response to the requirements emerged from the pilot supply chains to overcome the barriers, criticalities and needs highlighted by industrial partners involved in the project. In respect of the EPCGlobal EPCIS and UNECE event models, its **Enriched Event-based Model**:

- offers a plurality of product and lot **identification methods** and a more detailed process step description with a shared taxonomy of manufacturing operations
- supports the collection of the **events** from a wide range of heterogeneous systems, covering the many tiers of the supply chain
- enforces a **triangle of synergies** among usual **daily operations**, **blockchain technology** and **business services** of a traceability platform and its disclosure policies.

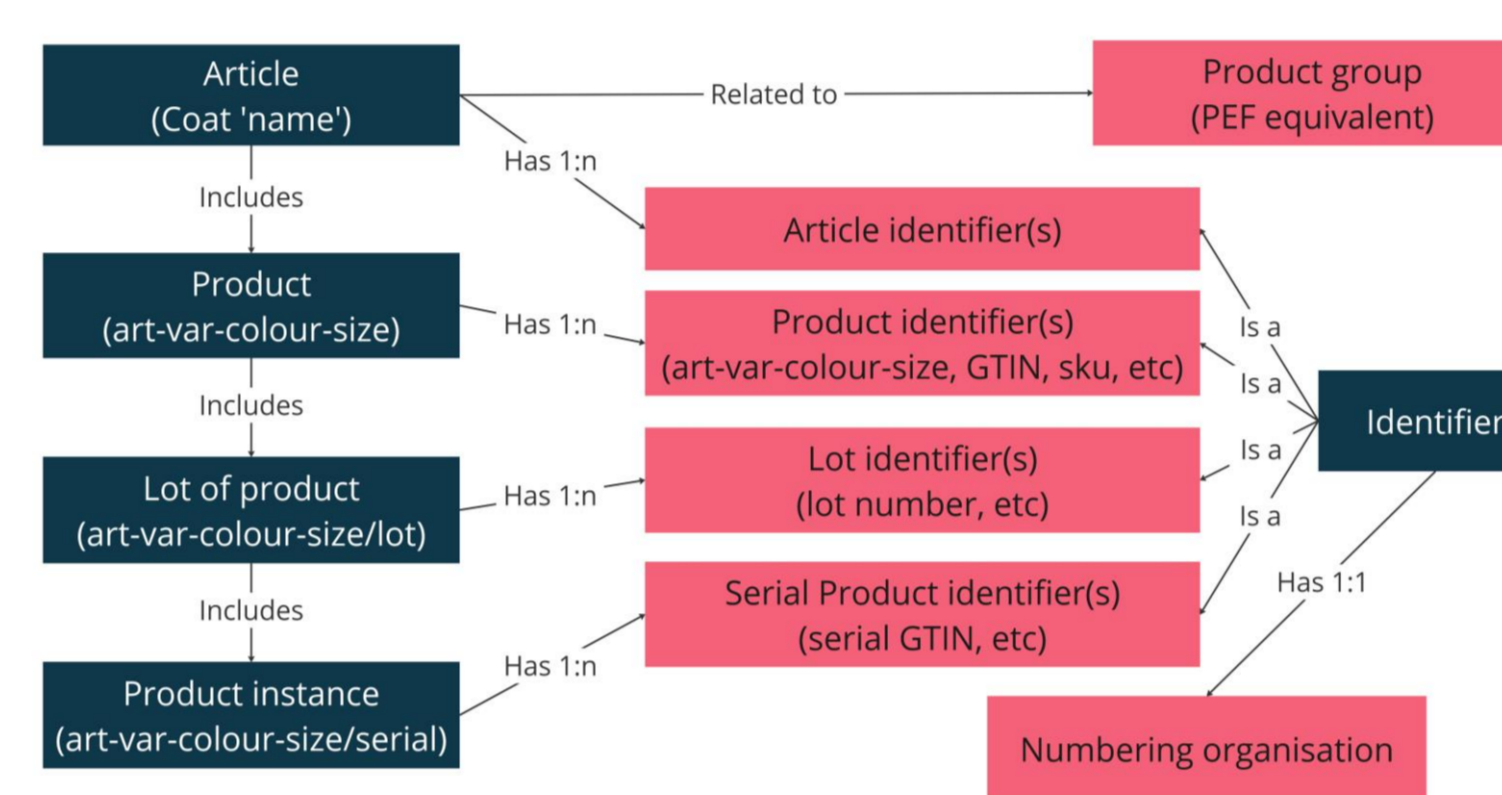


Fig. 1 The Product and its identifiers in the TRICK data model

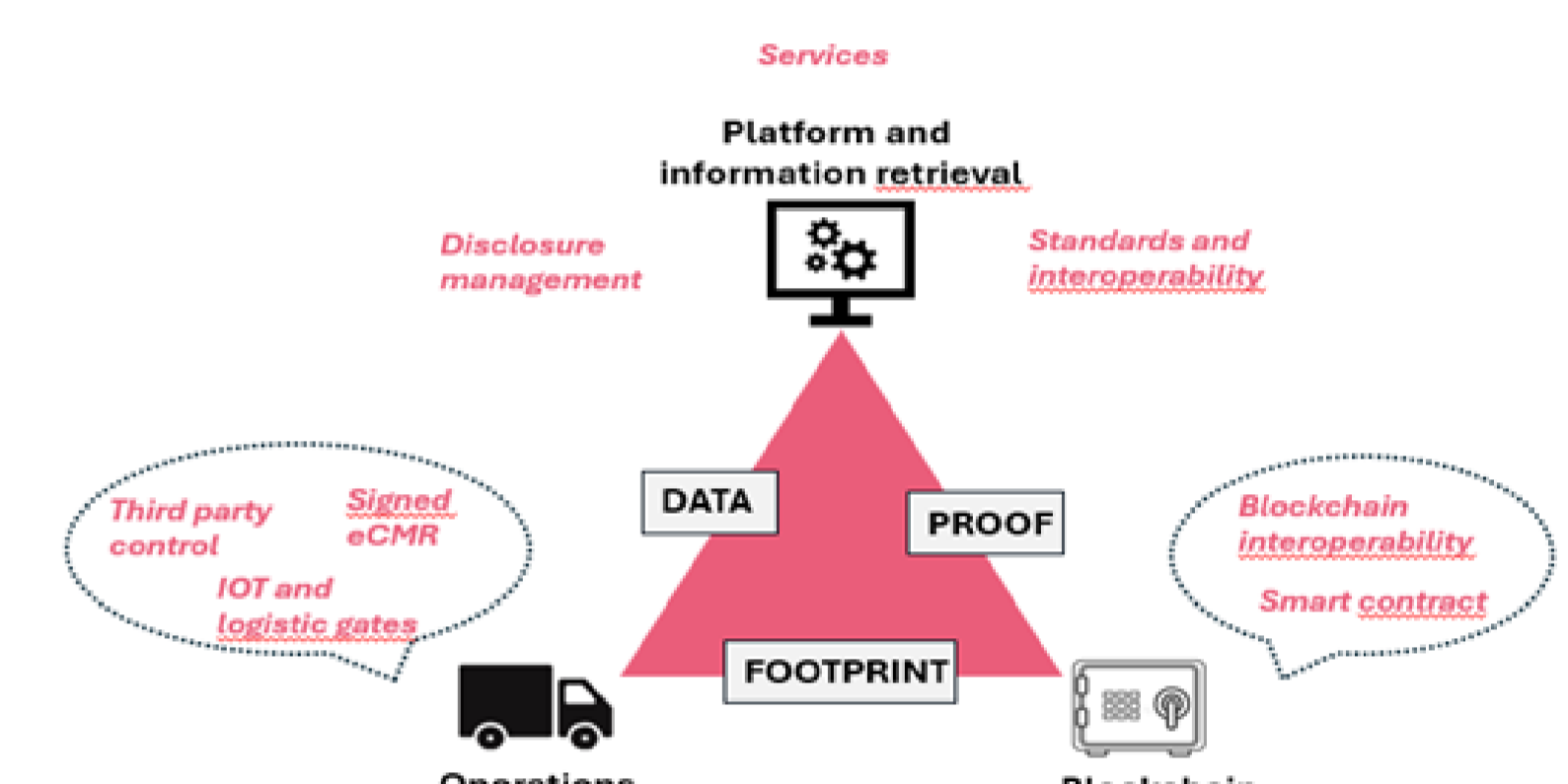


Fig. 2 The TRICK triangle of traceability: an overview of the interrelationships between Traceability, Blockchain, and TRICK Business Services

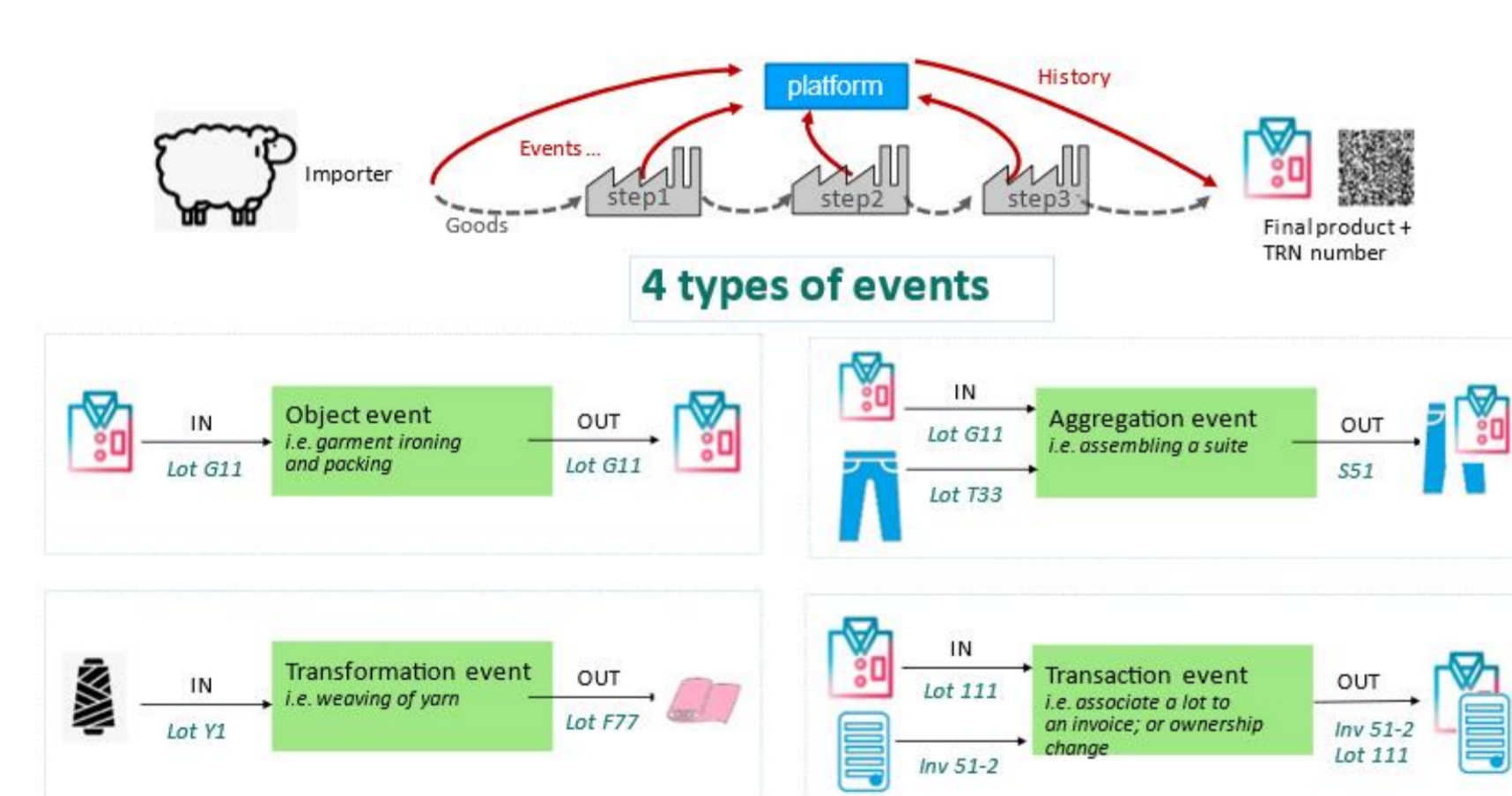


Fig. 3 The four kinds of event of the Enriched Event-based Model in TRICK

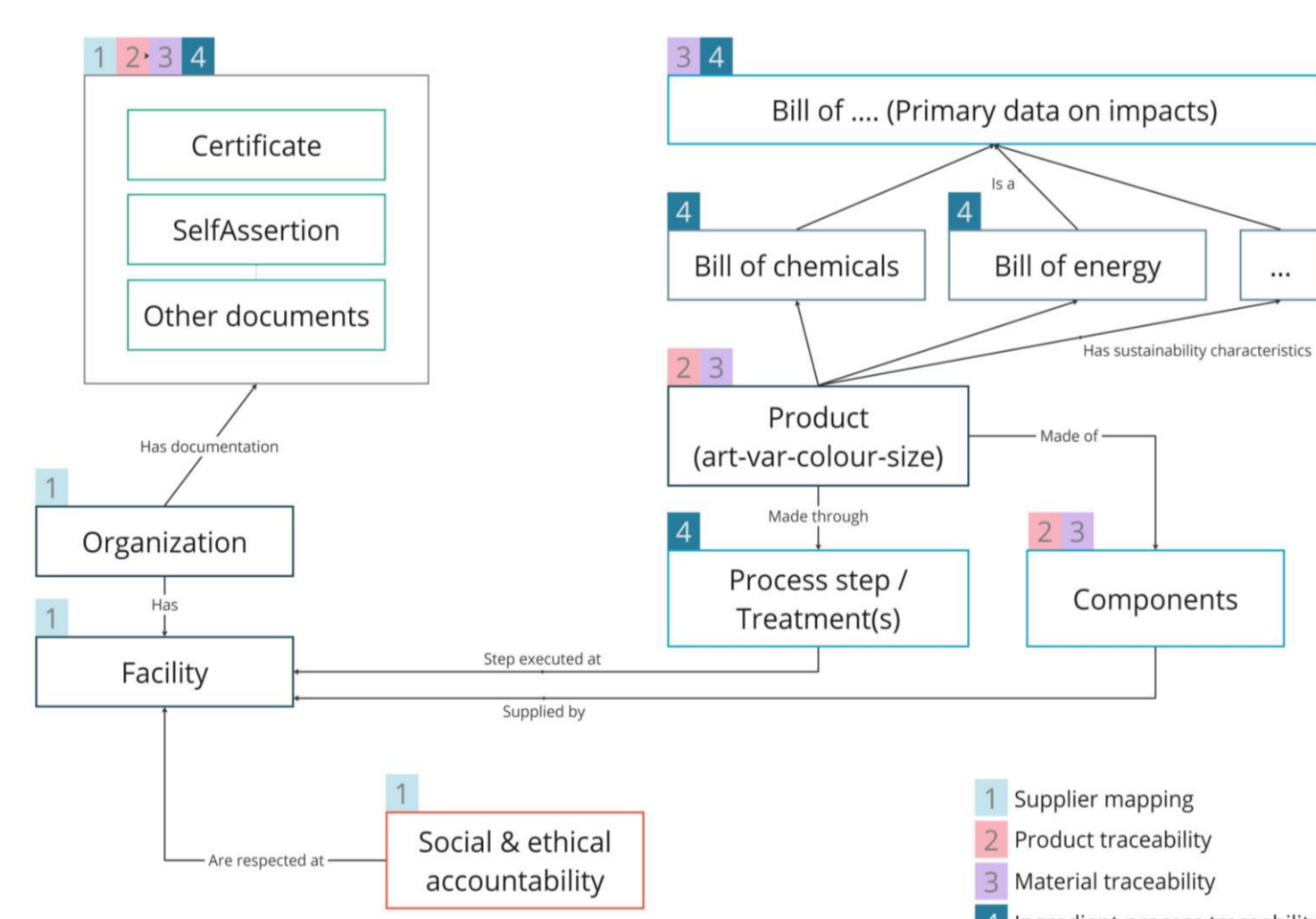


Fig. 4 The main Transparency and Sustainability entities vs. the 4th levels of traceability

In parallel the **Transparency and Sustainability Report** is the core of the Transparency and Sustainability data collection. It collects all the available non-operational data about Product and Organization and shares the data groups related to sustainability with specific schemas dedicated to each TRICK Business service. Other specialized data structures complement these two main reports.

Another distinctive element of the TRICK platform is that on one side it collects information from daily operations along the supply chain, on the other side it reconciliates on a **common data model** all the information and, finally secures on a multiple blockchains environment their footprint.

## INDUSTRIAL PILOTS – CIRCULAR APPROACH

The data model validation has been done through two pilots, one for the **classical fashion segment** and the other for the **technical work-wear segment** aiming to get the necessary data from a fragmented supply chain. The pilots began with the production of the goods made from virgin raw materials; the obtained garments, which usage was simulated, then were mechanically recycled. The obtained secondary raw materials include a percentage of the recycled goods; they were used to obtain garments of the same model whose characteristics were analyzed.

The pilots started by an initial data gathering from the industrial users' internal system, a data validation and the mapping to the data model for its refinement. Then traceability reports were created by modeling data and reporting the product's history. The collected data was also used to perform a **PEF study** across the whole supply chain.

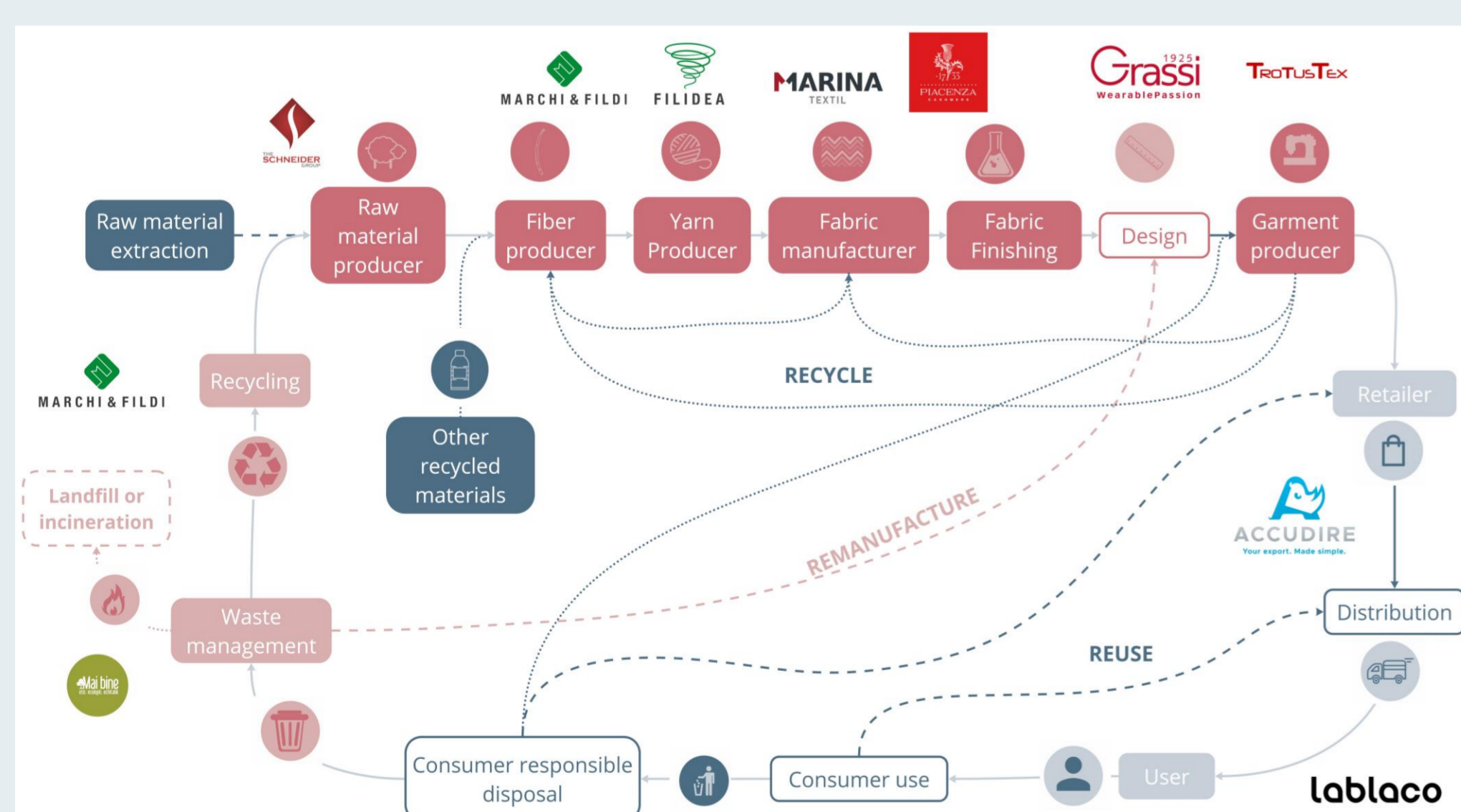


Fig. 5 Representation of a circular approach of the textile pilots in the TRICK project

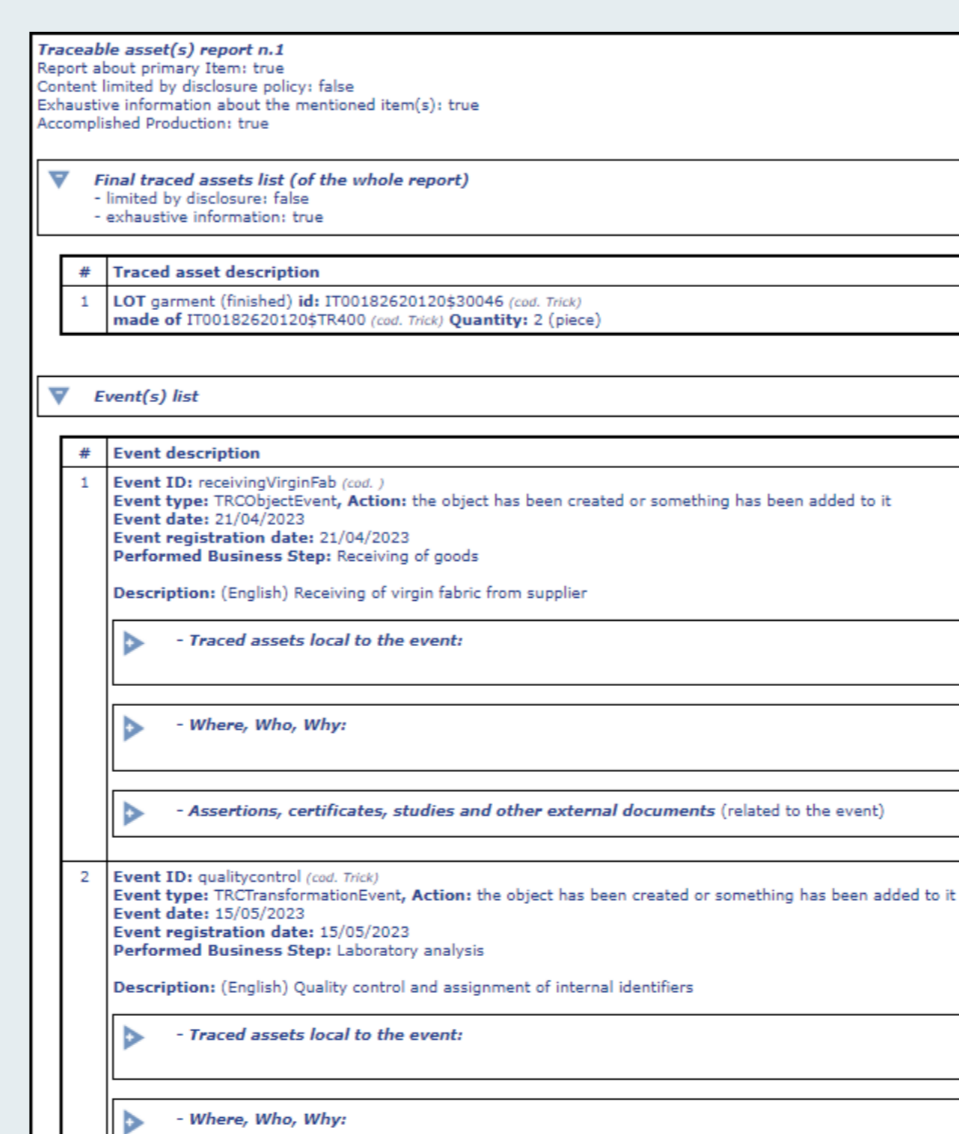


Fig. 6 Traceability report pilot instance



TRICK XML documents



eBIZ TRICK Resources



Traceability report pilot instance

## CONCLUSIONS AND NEXT STEPS

The **holistic approach** to data collection covering traceability and sustainability data allows to easily meet the requirements from new normative: it is the case of ESPR and Digital Product Passport (DPP) enforcing a sustainable approach to production and, in parallel, more efficacy of the market surveillance authorities.

The **next steps** will be to validate TRICK efficacy in collecting faithful data to fuel the creation of digital product passport contents from the fragmented textile supply chains.

On this purpose a **CEN Workshop process** will be launched to share and improve such contents and contribute with a public pre-standardization activity to the establishment of a framework for collecting faithful data to support the DPP statements of the fashion firms.

## CONTACTS

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