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ECHT

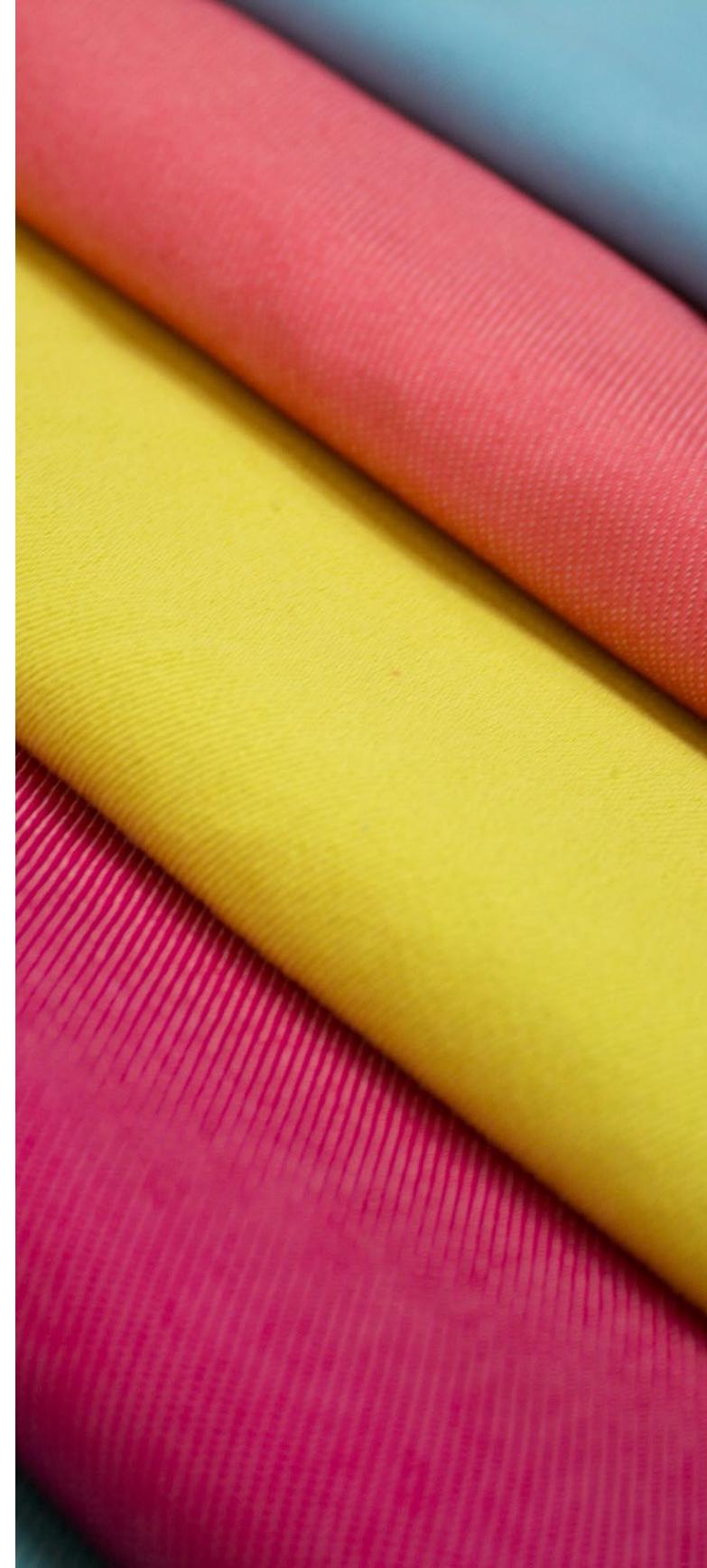
# Traceability Hub

## Connecting the Dots:

### Traceability Initiatives in the

# Textile Sector

19.11.2025



# ECHT Traceability Hub

A collaborative initiative to establish traceability and transparency as standard practice across European industry, creating practical tools for businesses of all sizes.

## **Our Vision (by 2027):**

Establish traceability and transparency as standard practice across the European industrial sector, creating practical tools enabling businesses of all sizes to access and share reliable supply chain data.

## **Our First Impact Area:**

Chemical Traceability for Textiles: establishing a methodology applicable to additional traceability challenges across European industry.

## **The Opportunity:**

By aligning our work with established global frameworks, we can accelerate impact, ensure interoperability, and position European chemical traceability standards to shape global practices.



# Today's Objectives

**Explore strategic alignment opportunities** between ECHT Traceability Hub and three complementary initiatives:

- 1. CEN Workshop Agreement** - Guidelines on data collection from Textile supply chains for the Digital Product Passport
- 2. UNECE Sustainability Pledge** - Proven framework with 1,000+ experts, 190,000+ companies, validated chemical traceability use cases
- 3. UN/CEFACT Digital Product Passport Standards** - Technical architecture and data models for interoperable traceability systems



# CEN Workshop Agreement

## CWA 18291:2025 TRICK Guidelines

Contributing Organizations & Key Contributors

### Leadership Team

- **Gessica Ciaccio**  
*ENEA - Chairperson*
- **Carla Fité Galan**  
*Reverse Resources - Vice-Chairperson*
- **Fabio Rossi**  
*UNI - Secretary*
- **Piero De Sabbata**  
*C Solutions - Main Contributor*

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### Contributing Organizations Include:

ENEA • Reverse Resources • UNI • C Solutions • RISE • GS1 Italy • INESC TEC • CITEVE • CENTEXBEL • Bureau Veritas • UK Fashion & Textile Association • SINTEF • UNIC • and 40+ other industry partners

*CEN Workshop Agreement 18291:2025 - Data Collection from Textile Supply Chains for Digital Product Passport*

# UNECE

The UNECE Sustainability Pledge is a comprehensive framework initiative supporting sustainable value chains through:

**Policy Recommendations & Call to Action** (adopted April 2021)

**Traceability & Transparency Standards & Implementation Guidelines** (adopted April 2021)  
**Blockchain Pilots & Capacity Building** (ongoing)

## Global Reach

**30+ countries** participating

**1,000+ experts** in the network

**190,000+ companies** represented

**90+ partners** in blockchain pilots

**19 use cases** across cotton and leather supply chains

**Project webpage:** <https://unece.org/trade/traceability-sustainable-garment-and-footwear>

# UNECE

## **Three-Step Traceability Framework**

**Partners include:** Stella McCartney, Vivienne Westwood, Giorgio Armani, adidas, WWF, IFC, ICEC, Better Cotton, OEKO-TEX®, ZDHC, and many more

### **Step 1:** Selection of Sustainability Claims

Origin, fibre content, chemical use, social and environmental performance

### **Step 2:** Evidence Requirements

**Traceability evidences:** Shipping notes, commercial invoices, delivery notes, packing lists, transportation documents

**Transparency evidences:** Certificates, audit reports, laboratory test results, NGO attestations, declarations

### **Step 3:** End-to-end Value Chain Coverage

From planting through post-consumption (12 stages tracked)

From raw material production through post-consumption

**EU Digital Product Passport (ESPR), Product Circularity Data Project (UNECE-UN/CEFACT)**

**16 EU sustainability legislations** impacting textile companies (including Ecodesign, EPR, Green Claims, CSDD, CSRD)

# UNECE

The Sustainability Pledge's:

Focus on **chemical use substantiation** as a core sustainability claim

Emphasis on **documentary evidence** throughout the value chain

**Standardization approach** for data collection and exchange

The Pledge is actively working to:

**Scale up** technical assistance in key countries

**Align** with DPP implementation

**Strengthen** KPIs and textile waste traceability

**Collaborate** through the UNECE Team of Specialists on ESG

Traceability



# UNECE

We propose that the **ECHT Traceability Hub** formally joins The Sustainability Pledge by submitting our commitment to:

Developing and implementing the **CEN Workshop Agreement on chemical traceability protocols** for textile supply chains

Establishing **standardized data collection guidelines** aligned with UNECE methodology

Facilitating **industry adoption** through the KP and the Traceability Hub working group coordination

Contributing to **Digital Product Passport readiness** for chemical information exchange



# UN/ CEFACT DPP INITIATIVE

This paper describes why ECE-UN/CEFACT standards and tools are ideally suited to support DPP development, explains which current and forthcoming ECE-UN/CEFACT standards and tools can assist in the development of DPPs, notably the traceability and transparency standards; and provides specific recommendations on how ECE-UN/CEFACT standards and tools could be further developed to support the adoption of DPPs. This paper supports the outcomes of the seventieth Commission session on Digital and Green Transformations for Sustainable Development in the Region of the Economic Commission for Europe (E/ECE/1504) and is part of the ECE Sustainability Pledge initiative for sustainable value chains in critical sectors for the circular economy.

Key strengths:

- ✓ **For SMEs:** Easy integration, low costs through globally aligned standards
- ✓ **Full coverage:** Trade facilitation, supply chain transport, finance across industries
- UN/CEFACT aligns with:** GS1, ISO, ITU, IEC, and other international standard-setting organizations

# UN/ CEFACCT DPP INITIATIVE

## Phase 1: Garment & Footwear Focus (2019-2023)

### Requirements & Standards (2019-2022)

Recommendation 46: Enhancing traceability and transparency of sustainable value chains

First standards published, related to ISO/IEC 19987

Traceability EPCIS

### Blockchain Pilots (2022-2023)

19 use cases, 95 partner companies, 23 countries, 179+ experts trained

Supply Chain Visibility data collection and validation

**Key learnings:** Time-consuming data collection, need for funding, manual verification processes, concerns about blockchain costs/environmental impact

**Outcome:** More scalable solution needed

## Product Circularity Data (2023-2024)

Support circular business models, digital twin, DPP

Related to ISO 59040 PCDS (Product Circularity Data Sheet)

Connects pre- and post-consumption phases

## Phase 2: Cross-Industry Scalability (2024-2025)

**Product Conformity (Verification)** - Evidences, assessments, accreditation data (related to ISO/CASCO)

**Buy-Ship-Pay Reference Data (Updated)** - Harmonized sustainability & circularity data (ISO 15000-5 / 11179-4)

**UN Transparency Protocol (UNTP)** - DPP Core data model + sector-specific extensions (under development)

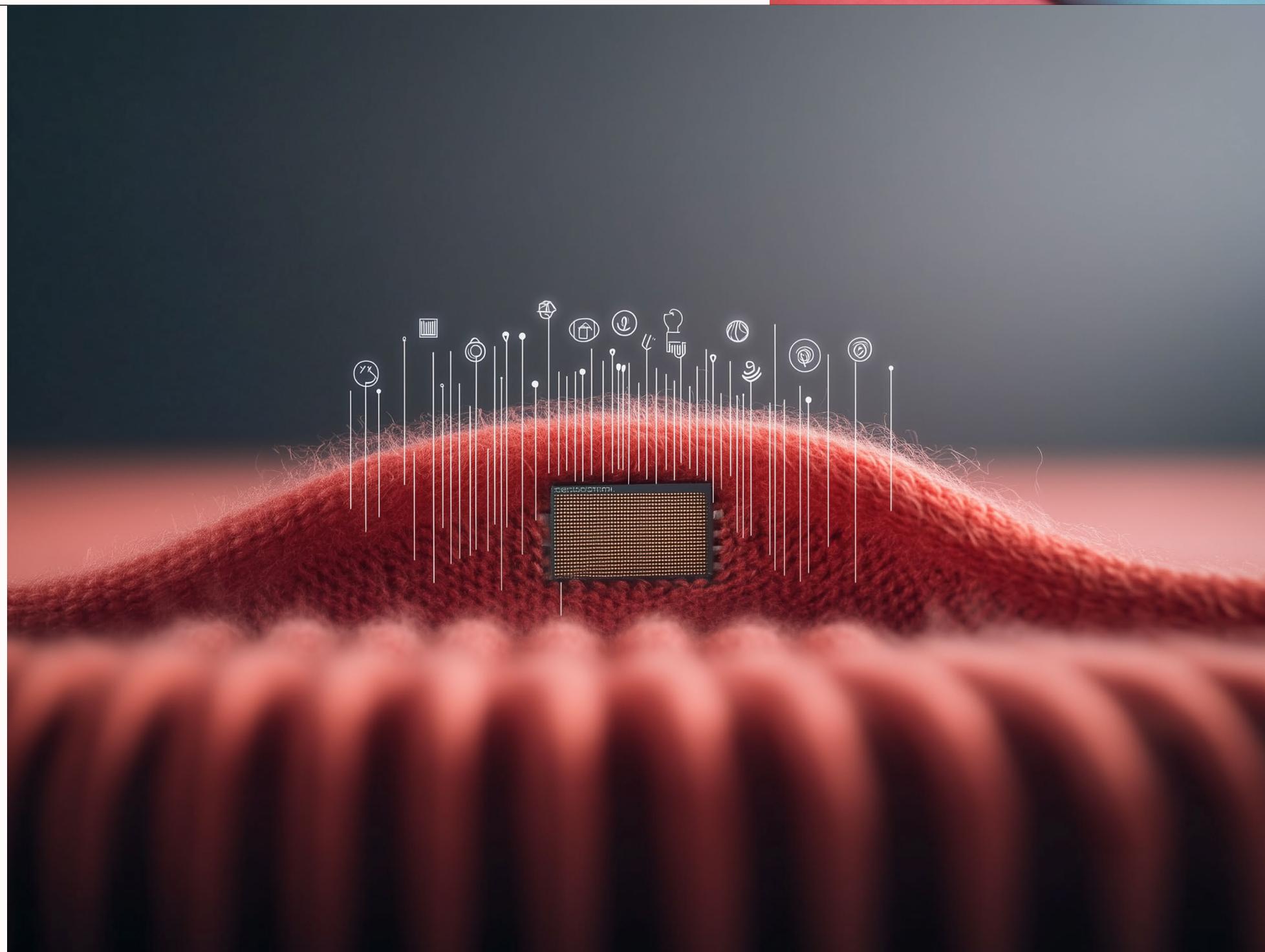
**Reference Note:** Solutions in support of Digital Product Passports

**Recommendation 49:** Transparency at Scale (in public review)

# CEN WA Working Group Chemicals on Textiles

## *Discussion Focus:*

- *Interest manifestation: ZDCH, UNEP, Ambition Loop Earth (NGO), Centexbel, Bureau Veritas*
- *Sustainability Pledge submission (CEN WA)*



# Traceability Hub ECHT #1 Working Group Chemicals on Textiles

## CEN Workshop Agreement



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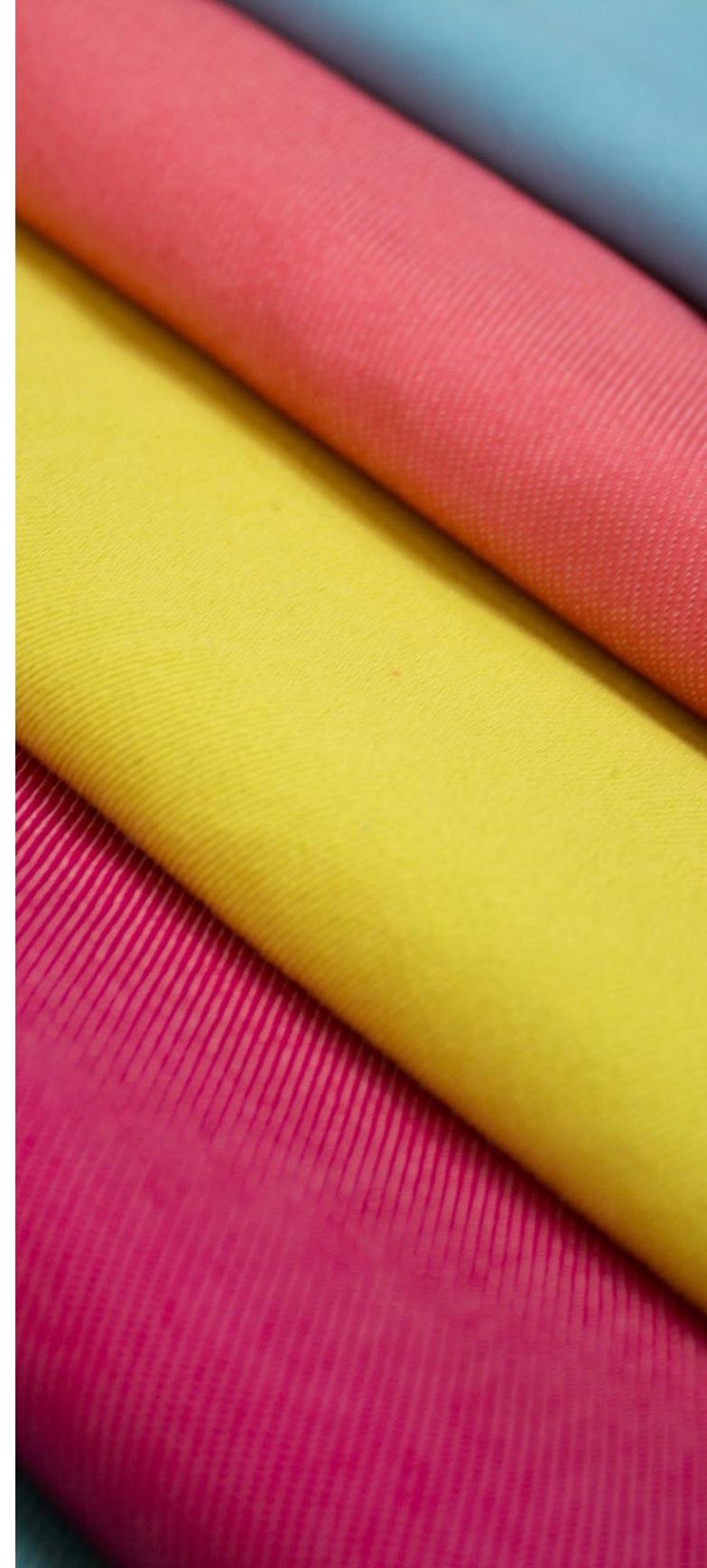
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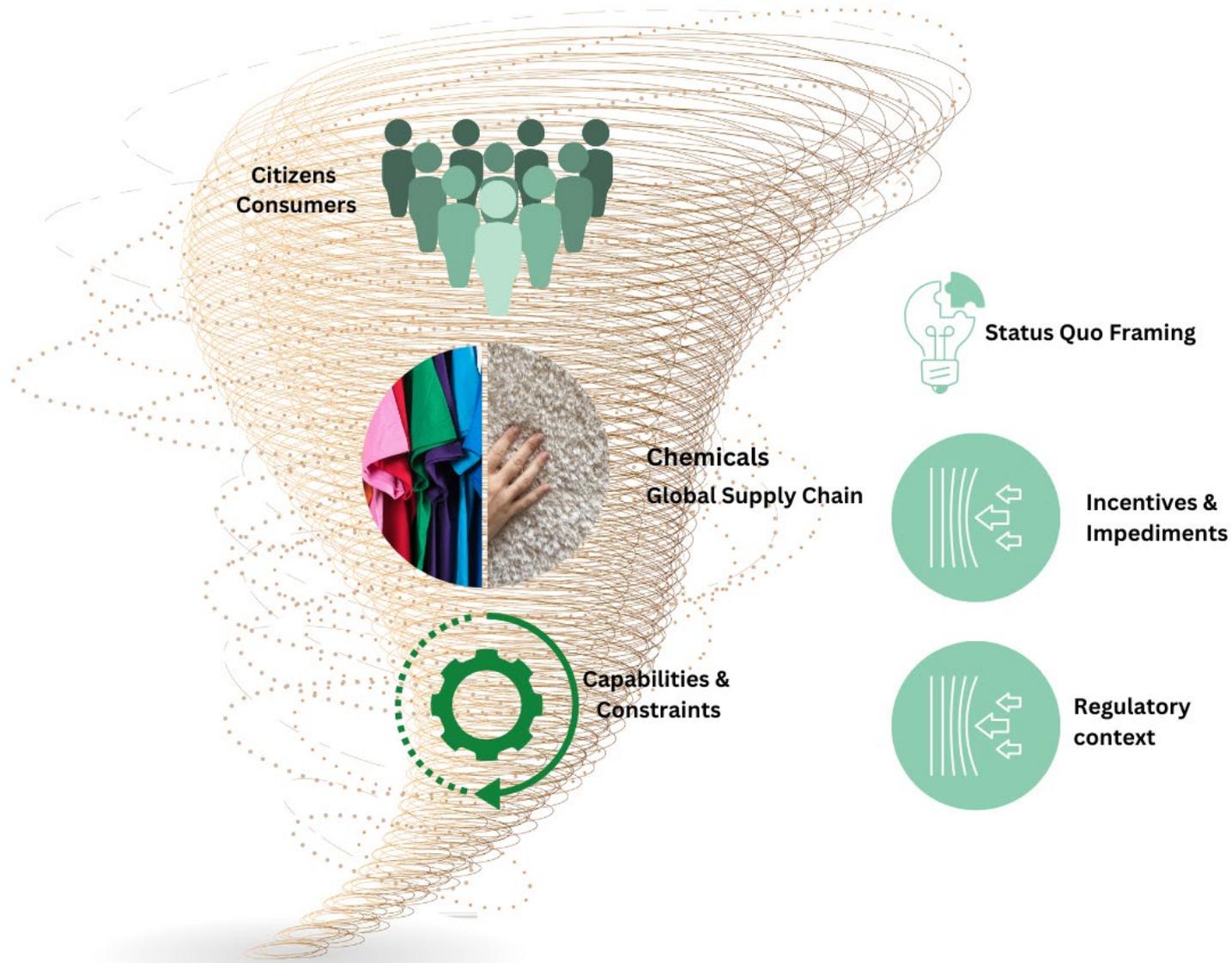
**ECHT**

# Traceability Hub / Back up slides

## **Connecting the Dots: Traceability Initiatives in the Textile Sector**

19.11.2025





# ECHT Project: Status Quo Analysis of the Textile Sector

This analysis reveals complex challenges across stakeholder relationships, regulatory frameworks, and market dynamics.

# Executive Summary: Navigating Chemical Traceability Challenges

Our analysis employs nine complementary frameworks to understand chemical traceability implementation challenges in textile and carpet industries. The complexity becomes evident in tracking approximately 12,000 different chemicals throughout production processes, with particular concerns surrounding substances such as azo dyes, PFAS, phthalates, and various processing agents.

Current gaps in REACH registrations and information requirements highlight the need for more comprehensive solutions. The evident disparities between large corporations and SMEs emerge as a significant challenge, particularly given that SMEs represent 89% of textile companies in the NWE region.

## Implementation Challenges

Implementation capabilities vary widely across organisations, affecting their ability to adopt and maintain traceability systems effectively.

## Regulatory Complexity

Requirements including REACH and ESPR create a complex compliance environment that organisations must navigate.

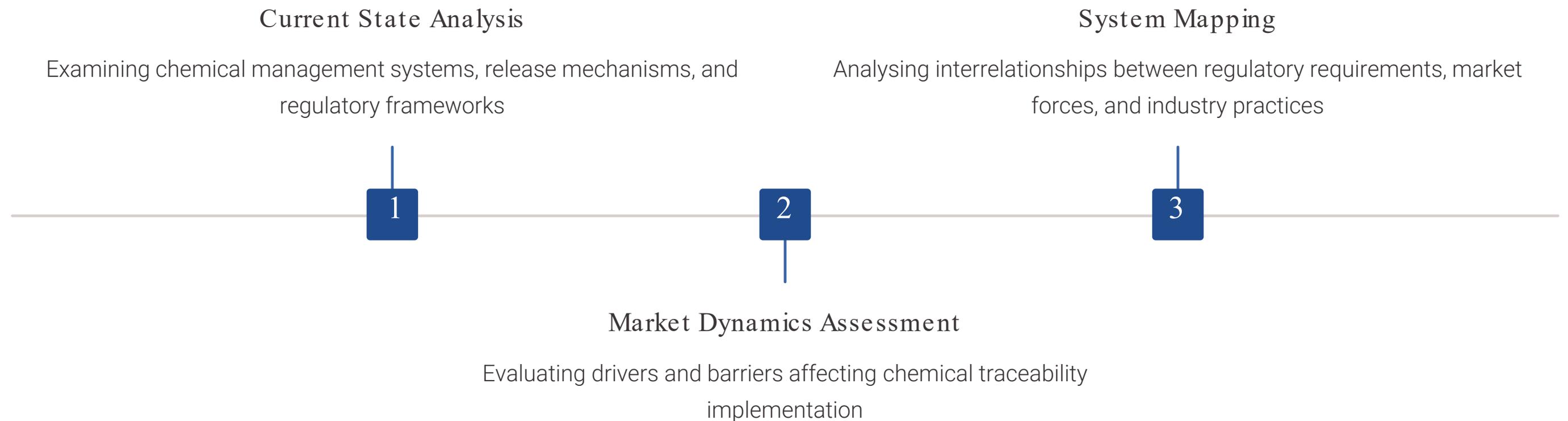
## Market Pressures

Consumer demand for sustainable products creates competitive advantages while complex supply chains and resource constraints pose implementation challenges.

# Introduction: Addressing the Textile Impact Challenge

The ECHT project emerges at a critical moment in the European Union's transition toward a circular economy. With approximately 6 million tonnes of textiles discarded annually in the EU - roughly 11 kg per person - particularly concentrated in the wealthy North-West Europe region, there is an urgent need for systemic change in how these industries manage their chemical content and material flows.

This analysis seeks to understand the complex interplay between technical capabilities, organisational readiness, and systemic barriers that industry actors face when implementing chemical traceability systems. It focuses on the practical realities faced by the textile system including small and medium-sized enterprises, which represent the vast majority (89%) of textile companies in the NWE region.



# Understanding Chemical Traceability in the Textile Industry

Chemical traceability in textiles refers to the ability to track and trace substances used throughout the supply chain. The textile industry faces significant challenges in managing approximately 12,000 different chemicals identified in manufacturing processes, many of which may qualify as substances of concern under EU regulations.

The scale of chemical use is striking - producing just one kilogram of cotton T-shirts requires around three kilograms of chemicals. Several major chemical categories raise particular concerns, including azo dyes, PFAS (per-and polyfluoroalkyl substances), phthalates, and various processing agents.

## Dyes & Colorants

Azo dyes can degrade into aromatic amines with carcinogenic effects, particularly through skin contact

## Release Mechanisms

Chemicals can be released through migration, leaching, evaporation, and particulate releases



## Surface Treatments

PFAS compounds ("forever chemicals") are valued for water/stain resistance but pose serious health risks

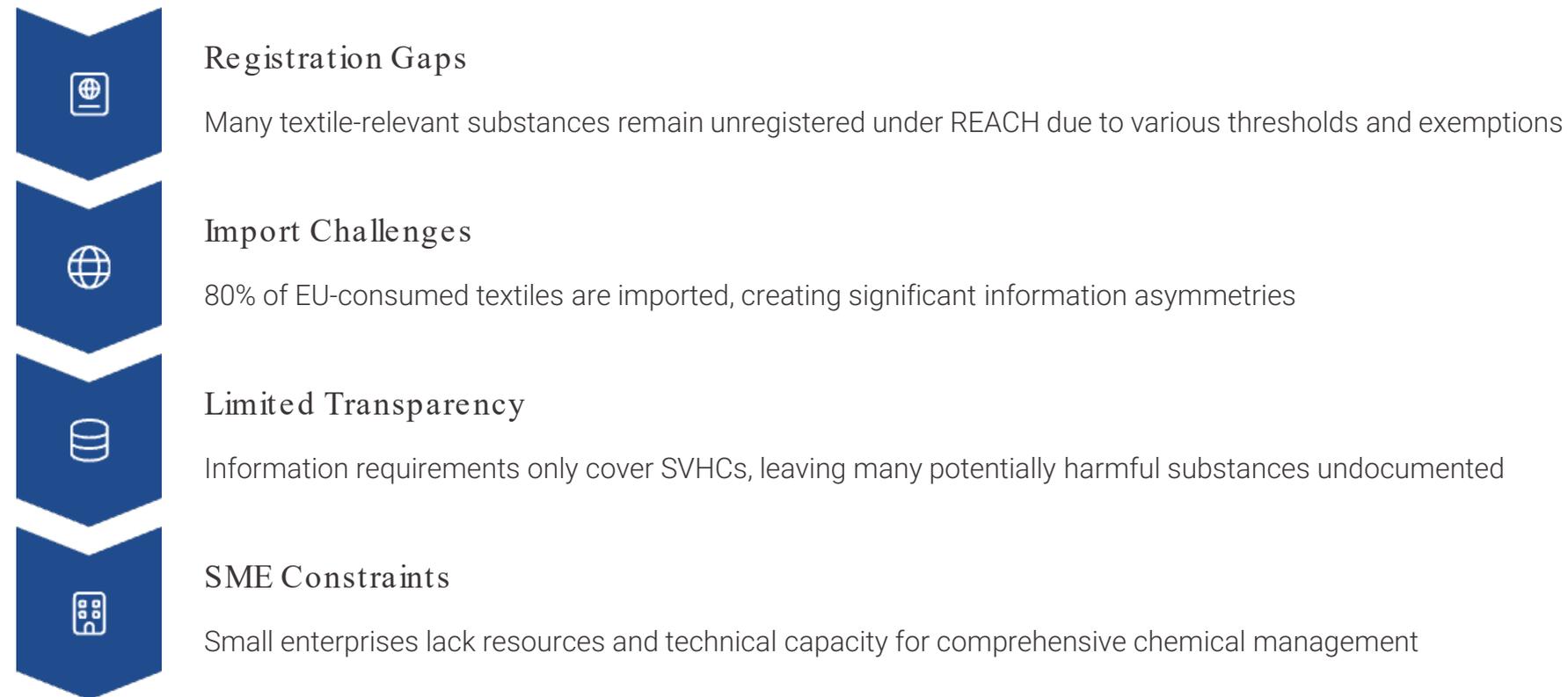
## Processing Chemicals

Phthalates as plasticisers and formaldehyde in fabric finishing linked to potential health risks

# The Regulatory Framework and Weak Links

The current regulatory framework, particularly in the EU, centres on REACH and the upcoming ESPR requirements. However, significant challenges exist in implementation. Approximately 80% of textile articles consumed in the EU are imported from non-EU countries, creating information availability challenges.

Of approximately 3,500 substances identified as relevant for textile use, about 2,000 remain unregistered under REACH for various reasons. Current REACH information requirements for articles only cover Substances of Very High Concern (SVHC) listed on the Candidate list, leaving out many potentially harmful substances.



# Analysis of Incentives and Impediments in Chemical Traceability

Chemical traceability in the textile industry demands analysis through multiple theoretical lenses to capture its complexity. Nine distinct frameworks reveal the interplay between market dynamics, organisational behavior, and institutional structures in shaping traceability implementation and outcomes.

The textile industry's market structure creates significant challenges for chemical traceability implementation. With approximately 80% of EU-consumed textiles being imported, substantial information asymmetries exist between producers and consumers. The integration of environmental considerations into economic decision-making remains inadequate.



## Regulatory Compliance

Expanding legal frameworks create increasingly stringent requirements, compelling companies to adopt comprehensive chemical traceability systems



## Market Expectations

Growing societal demands for transparency create competitive advantages for brands demonstrating effective chemical traceability



## Sustainable Chemistry

Traceability systems facilitate management and substitution of hazardous chemicals throughout the supply chain

# The Role of System Mapping in Chemical Traceability Implementation

Chemical traceability in textiles and carpets represents a complex challenge where regulatory requirements, supply chain management, and sustainability goals converge. The textile manufacturing process encompasses multiple stages with distinct chemical inputs: spinning, dyeing and printing, and finishing, each involving various chemical substances.

The European Union's regulatory landscape will undergo significant changes in 2025-2027, introducing chemical traceability requirements as a key mechanism to enhance transparency and environmental accountability. These align with the EU Green Deal and Sustainable Products Initiative, supporting circularity and traceability to achieve sustainability goals.



## Regulatory Evolution

Core regulations like REACH, CLP, and POPs establishing fundamental requirements



## Digital Product Passport

New requirements through ESPR with specific textile regulations expected in 2026



## Industry Implementation

Organisations developing systems to track chemicals through complex production processes

# System Map Analysis: Textiles vs. Carpets

Mapping the chemical traceability systems for textiles and carpets reveals a complex interplay of stakeholders, processes, and challenges. The textile industry's system map highlights various stages spanning raw and recycled material sourcing, production, distribution, use, and end-of-life processes.

The carpet industry presents a slightly different picture, with a more defined end-of-life process due to established recycling practices in some regions. The GUT-PRODIS system provides a comprehensive traceability framework through its three-pillar approach: chemical testing, standardized performance symbols, and unique product identification.

## Textile Industry Challenges

- Lack of uniform standards across regions
- Technological integration gaps, especially for SMEs
- Growing consumer demand for transparency
- Resource disparities between large companies and SMEs

## Carpet Industry Characteristics

- More defined end-of-life recycling systems
- Established traceability solutions (GUT-PRODIS)
- Corporate sustainability initiatives by larger manufacturers
- Similar SME barriers to technology adoption

# Comparative Analysis of Textile and Carpet System Maps

A comparative analysis of textile and carpet system maps reveals shared challenges in chemical traceability. Despite the carpet industry's GUT-PRODIS system, data gaps persist, particularly for products outside this framework and in data interoperability between different traceability systems.

Resource disparities among stakeholders, especially SMEs, create bottlenecks that impede progress. Regulatory misalignment further complicates matters, with variations in policies at local, regional, and global levels adding complexity to developing cohesive traceability systems.

To accelerate progress, developing a cross-sectoral globally harmonised transparency and traceability system is essential, alongside targeted policy incentives and technological adoption. These measures can create a level playing field, particularly benefiting SMEs who currently struggle with complex regulatory landscapes.

Key leverage points for intervention range from basic technical adjustments (chemical thresholds, testing quantities) to high-impact systemic changes (industry-wide transparency platforms, paradigm shifts toward chemical safety). The current shift from information asymmetry to transparency represents a powerful leverage point, driven by growing awareness of chemical impacts.

While many stakeholders approach traceability as merely compliance-driven, forward-thinking companies are using it for value creation and market differentiation. Ecosystem development through cross-sector collaboration shows promise for transformative change.

# Towards a Sustainable Chemical Traceability Framework

The analysis of chemical traceability in the textile and carpet sectors reveals a complex landscape where regulatory demands, market pressures, and technological capabilities intersect. The interconnected nature of chemical traceability challenges becomes apparent when considering the interdependencies between various stakeholders throughout the supply chain.

Creating a level playing field emerges as a critical concern for successful implementation. The current landscape shows significant disparities in resources, technical capabilities, and market access between large corporations and SMEs, risking a two-tier system where only well-resourced organisations can fully implement traceability measures.

12,000

Chemicals

Different chemicals identified in textile manufacturing processes

89%

SME Representation

Proportion of textile companies in the NWE region that are SMEs

80%

Imports

Percentage of EU-consumed textiles imported from non-EU countries

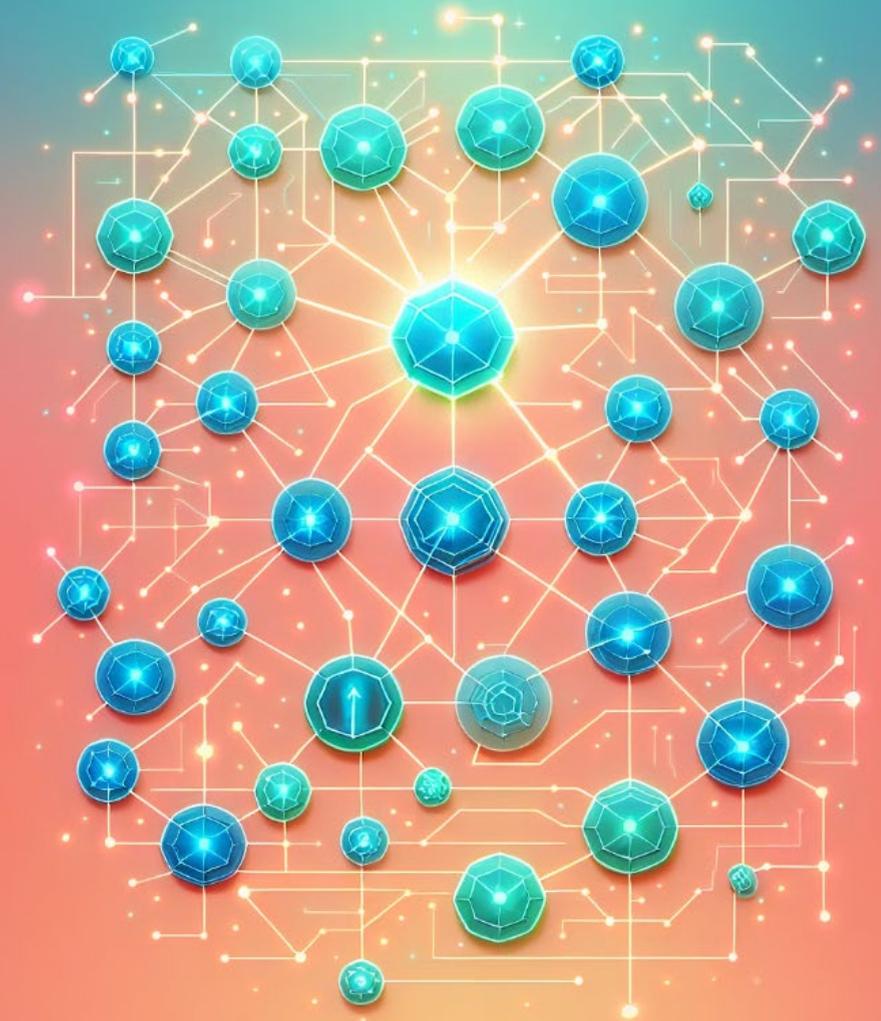
2027

Target Year

EU's goal for implementing comprehensive transparency and traceability

# ECHT Traceability Hub

A collaborative initiative to establish traceability and transparency as standard practice across European industry, creating practical tools for businesses of all sizes.



# Vision for Impact



# Mission Statement

## Transformative Change

Accelerating systemic approaches to  
traceability

## Level Playing Field

Establishing responsibility and trust  
in value chains



## Interdisciplinary Collaboration

Fostering collective intelligence  
across sectors

## Inclusive Governance

Building resilient ecosystems beyond  
boundaries

# Our 4 Core Pillars in this Context

**Systemic Approach** → Aligning with global frameworks that address technical, organizational, and governance dimensions

**Building New Competences** → Learning from 179+ experts trained through UNECE pilots and UN/CEFACT implementation experiences

**Ecosystem Creation** → Connecting to 30+ countries, 90+ partners already implementing traceability solutions

**Market Transformation** → Leveraging established platforms to create efficient drivers for chemical traceability adoption

## **Our Commitment:**

Transform chemical traceability from perceived regulatory burden into responsible business practice with measurable impact, starting with practical tools that create tangible societal value.

**Let's explore how global standardization can accelerate our mission**

# First Impact Hub: Chemical Traceability for Textiles



## Chemical Challenge

12,000 different chemicals used in textile manufacturing



## Industry Structure

89% of textile companies in NWE region are SMEs



## Regulatory Shift

Digital Product Passports signal new era of transparency





# Our Commitment

- 1** **Shift Perspective**  
Transform traceability from regulatory burden to responsible business practice
- 2** **Targeted Collaboration**  
Build systems delivering tangible societal value
- 3** **Practical Innovation**  
Deliver solutions through multidisciplinary expertise
- 4** **Systemic Thinking**  
Address complex interconnections between technical, economic, social dimensions

# Core Pillars



## Systemic Approach

Addressing technical, organizational dimensions simultaneously

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## Building New Competences

Creating tailored educational programs for diverse stakeholders

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## Ecosystem Creation

Supporting accessible traceability implementation pathways

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## Market Transformation

Aligning incentives with traceability objectives

# Operational Approach

## Collective Intelligence

Combining expertise across industry, academia and civil society through structured dialogues.

## Knowledge Leadership

Positioning as neutral voice through evidence-based reports and biannual conferences.

## Innovation Accelerator

Showcasing pilot projects with clear metrics and visible outcomes as proof points.

## Capacity Development

Creating modular, immediately applicable training programs for essential competencies.





# Collaborative Structure and Engagement

1

## Connect

Linking textile companies, associations, and experts through biannual meetings

2

## Share

Delivering direct access to emerging traceability insights

3

## Implement

Providing practical strategies that save research time

4

## Improve

Reducing process improvement uncertainty through collective knowledge

# Engagement Programs

## Working Groups

6-8 organizations facing similar challenges meet monthly online and quarterly in-person.

- Submit specific problems
- Contribute to solution development
- Deliver practical outputs like templates
- Reduce individual development costs

## Fellowship Program

Connects emerging professionals with host organizations for 6-month projects.

- Fellows gain direct industry exposure
- Organizations benefit from fresh perspectives
- Industry gains network of talents
- Projects address key levers of change

# UNECE

## **Building on Success: Project Spillovers & Alignment**

### **UNECE-UN/CEFACT Product Circularity Data Project**

Objective: Improving sustainability through product circularity;

supporting digital data exchange at post-consumption

Scope: Aligning with EU ESPR and DPP; using UN Core

Component Library subset

Global, cross-industry approach reusing existing standards

### **UNECE-UNECLAC Study on Secondhand Clothing Trade**

Addressing textile waste traceability and global trade flows

Policy gap analysis for used textiles worldwide

### **Critical Minerals Traceability & Transparency Project**

Replicating textile methodology for other sectors

Demonstrating scalability of the approach



# Building Our Ecosystem



## Identify Opportunities

Spotting emerging possibilities that participants might miss individually



## Share Approaches

Distributing proven methods that reinforce implementation across sectors



## Maintain Governance

Ensuring stakeholders retain access to knowledge networks and resources