Georg-August-Universität Göttingen

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# Proactive Supply Chain Management and Consumer Communication

## Insights from transdisciplinary research projects

*Silke Kleihauer, Julian Schenten, **Martin Führ**, Sina Wans*

Funding: Partners: **CinChem Project**

GEFÖRDERT VOM Bundesministerium für Bildung und Forschung

BUND FREUNDE DER ERDE

International ChemSec Chemical Secretariat

Universitet Stockholms Stockholm University

Funding: Partners: **SuSport Project**

DBU Deutsche Bundesstiftung Umwelt

BSI Bundesverband der Deutschen Sportartikel-Industrie e.V.

TEGEWA

# Topics

- Normative requirements as a permanent and dynamic challenge to supply chain actors
- Dynamic material data system as a precondition for compliance and business opportunities
- Consumer awareness and app-supported SVHC requests
- Contribution towards sustainable chemistry management

# A. Project CinChem

## Consumer behaviour and Innovation towards sustainable Chemistry (CInChem)

**Konsumverhalten und Innovationen zur nachhaltigen Chemie (KInChem)**

GEFÖRDERT VOM
Bundesministerium für Bildung und Forschung

Partner
BUND FREUNDE DER ERDE
International ChemSec Chemical Secretariat
Universitet Stockholms Stockholm University

GEFÖRDERT VOM
Bundesministerium für Bildung und Forschung

# A. Overview CInChem

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**Approach:** Reduce impediments to

- communicate and
- act (= change behaviour) at different levels:

Future SVHC

| | | |
|---|---|---|
| Consumer | BUND FREUNDE DER ERDE | Article: Tox-Data → App |
| Proactive Companies | International ChemSec Chemical Secretariat | Market options |
| (Eco)Tox Scientific Community | Stockholm University | Transparency in REACH Registration Mechanisms |

# B. Project SuSport

## Market Opportunities for „Sustainable Chemistry" [in Sporting goods] triggered by REACH (SuSport)

Funded by
*Deutsche Bundesstiftung Umwelt (DBU)*
*German Federal Environmental Foundation*
in cooperation with
*BSI (Federal Association of the German sports goods industry)*
*TEGEWA (Association of textile and leather chemicals manufacturers).*

Introduction
*Dr. Maximilian Hempel, DBU*

# Analytical Framework: Transdisciplinary Delta-Analysis

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**Field Actors**
(incl. tacit knowledge)

1. **Problem situation**
2. **Target state** *(normative aim)*
3. **Analyse** the Problem Situation *(status quo)*
4. Identify Delta *(= 2-3)*
5. Design Institutional Options
6. Remaining Delta *(= 2-5)*
7. Realisation by Field Actors

Iterative feedback process

a. Apply normative criteria
b. Identify relevant actors
c. Define **expected behaviour** to reach the target state:
– *Which actor should do …*
– *When*
– *What?; respectively should with*
– *Whom*
– *How communicate/cooperate?*

Behaviour of the relevant actors:
– **Incentive and**
– **Impediment**
– **Analysis (IIA)**

c.f. Führ/Bizer 2015: „Compact Guidelines"

**„Responsive Regulation"**
(= „Response" to IIA):
– *Enhance Incentives*
– *Reduce Impediments*

**Evaluation**
against the normative criteria (target state):
– *Sustainable Development*
– *Remaining risks*

**Measures**
(incl. monitoring) towards:
– *Sustainable Development*
– *Risk management*

System knowledge · Normative Orientation · Transformation knowledge · Tacit knowledge of field actors

# (1) Problem Situation: Textiles / Apparel

- UNEP: Textile and clothing the world's 2nd biggest economic activity for intensity of trade
- Exposure to hazardous/problematic substances
  - Workers
  - Consumers
  - Environment → Men via Environment
- Complex/volatile supply chains: challenge to risk management

# (2a) **Target state (normative aim)**

- International Governance (Johannesburg, SAICM, SDGs)

  12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment

- Regulation in Europe
  - **Restrictions**: REACH Annex XVII, [RoHS]
  - **Duty to Communicate SVHC** : REACH Art. 33
    - Art. 33(1) supply chain | Art. 33 (2) consumers
    - Candidate list updated biannually
    - ECJ: O5A-judgement Sept. 2015

**Enormous Challenge**

- NGO: Greenpeace „Detox“ campaign
  - increased consumer awareness → Detox Commitments

# (2b) **Challenge: Supply Chain Actors**

Compliant tomorrow ← Today: Beyond Compliance

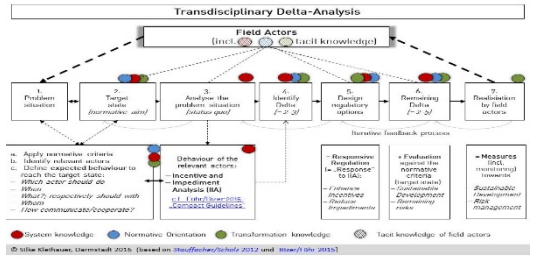
- Current approaches
  - Restricted Substance List (RSL): not sufficient
  - Manufactured RSL (input-stream): helpful, still not sufficient
- State of the Art:
  - Traceability based on Full Material Declaration
  - including the entire Supply Chain, whilst reflecting CBI issues
    - Supplier of Chemicals/Formulations
    - Downstream User
    - Importer/Brands
    - Retailer [Supplier of an article, Art. 3(33) REACH]
  - covering the individual article

# (3) Incentive/Impediments Analysis (IIA): Willingness to act?

- **Actors view**
  - EU Formulators‘ perspective (TEGEWA)
  - Brands‘ perspective (BSI)
- Interim result: **Deadlock**
  - **We all have a problem.**
  - **Something must be done …**
  - **… but not by me.**
- Analysis
  - Professional patterns of perception and thinking
  - No open and systemic view on supply chain solutions

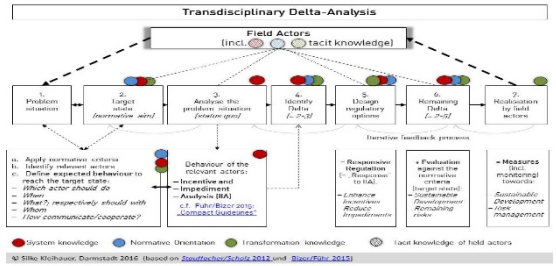
# Scenario method activates systemic thinking

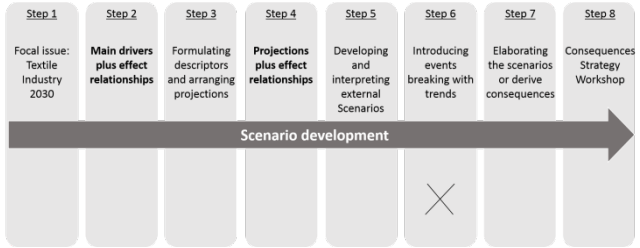
## Analytical framework



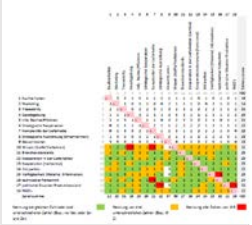
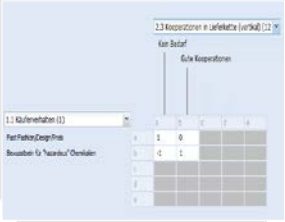

## Refined process with scenario method

### Enables transformative thinking



# Scenario method (*H. Geschka*), adapted

| Step 1 | Step 2 | Step 3 | Step 4 | Step 5 | Step 6 | Step 7 | Step 8 |
|---|---|---|---|---|---|---|---|
| Focal issue: Textile Industry 2030 | **Main drivers plus effect relationships** | Formulating descriptors and arranging projections | **Projections plus effect relationships** | Developing, interpreting external Scenarios | Introducing events breaking with trends | Elaborating the scenarios or derive consequences | Consequences Strategy Workshop |
| | **Key 1: Impact Matrix**  | | **Key 2: Consistency Analysis**  | | | | |

**Scenario development**

# Impact Matrix

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Kaufverhalten | Marketing | Traceability | Gesetzgebung | Info. Rechte/Pflichten | Strategische Kooperation | Komplexität der Lieferkette | Strategische Ausrichtung | Gesamtkosten | Wissen (Stoffe/Verfahren) | Branchenstandards | Kooperation in der Lieferketten (vertikal) | Kooperationskonzepte (horizontal) | 3rd parties | Verfügbarkeit (Material, Information) | technischer Fortschritt | politische Situation Produktion | NGO's | Zeilensumme |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 430 |
| 1 Kaufverhalten | 1 | x | 3 | 2 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 19 |
| 2 Marketing | 2 | 3 | x | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 14 |
| 3 Traceability | 3 | 2 | 2 | x | 0 | 2 | 2 | 3 | 1 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 31 |
| 4 Gesetzgebung | 4 | 1 | 1 | 2 | x | 1 | 1 | 1 | 1 | 2 | 3 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 25 |
| 5 Info. Rechte/Pflichten | 5 | 2 | 1 | 3 | 1 | x | 1 | 1 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 0 | 1 | 1 | 24 |
| 6 Strategische Kooperation | 6 | 0 | 1 | 1 | 2 | 1 | x | 2 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 2 | 23 |
| 7 Komplexität der Lieferkette | 7 | 0 | 1 | 3 | 0 | 2 | 1 | x | 1 | 2 | 3 | 1 | 2 | 2 | 2 | 2 | 1 | 0 | 0 | 23 |
| 8 Strategische Ausrichtung (Unternehmen) | 8 | 1 | 3 | 2 | 0 | 2 | 2 | 2 | x | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 1 | 29 |
| 9 Gesamtkosten | 9 | 3 | 0 | 0 | 1 | 0 | 2 | 1 | 2 | x | 0 | 2 | 2 | 2 | 2 | 0 | 1 | 0 | 0 | 18 |
| 10 Wissen (Stoffe/Verfahren) | 10 | 1 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 3 | x | 2 | 2 | 2 | 2 | 3 | 2 | 1 | 1 | 32 |
| 11 Branchenstandards | 11 | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | x | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 25 |
| 12 Kooperation in der Lieferketten | 12 | 0 | 2 | 2 | 0 | 1 | 2 | 2 | 2 | 2 | 2 | 1 | x | 1 | 1 | 2 | 1 | 1 | 1 | 23 |
| 13 Kooperation (horizontal) | 13 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 2 | 1 | x | 1 | 2 | 1 | 1 | 1 | 25 |
| 14 3rd parties | 14 | 1 | 2 | 2 | 1 | 2 | 1 | 1 | 1 | 3 | 2 | 2 | 2 | 1 | x | 1 | 1 | 1 | 1 | 25 |
| 15 Verfügbarkeit (Material, Information) | 15 | 1 | 2 | 3 | 1 | 2 | 1 | 1 | 1 | 3 | 2 | 1 | 1 | 1 | 1 | x | 1 | 0 | 1 | 23 |
| 16 technischer Fortschritt | 16 | 2 | 2 | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | x | 0 | 1 | 24 |
| 17 politische Situation Produktionsland | 17 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | x | 2 | 22 |
| 18 NGO's | 18 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 1 | 2 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | x | 25 |
| Zeilensumme | | 22 | 28 | 31 | 16 | 25 | 26 | 21 | 22 | 37 | 30 | 27 | 26 | 24 | 24 | 23 | 18 | 11 | 19 | 430 |

Nennung der gleichen Zahl oder zwei unterschiedlicher Zahlen (Bsp.: nur 1er; oder 1er und 2er)

Nennung von drei unterschiedlichen Zahlen (Bsp.: 0-2)

Nennung aller Zahlen von 0-3

# Impact Factor Analysis

| | | Zeilensumme | Spaltensumme | Rangfolge nach Zeilsumme | Zeilensumme / Spaltensumme | Zeilensumme * Spaltensumme |
|---|---|---|---|---|---|---|
| **1** | Kaufverhalten | 19 | 22 | 16 | 0,86 | 418 |
| **2** | Marketing | 14 | 28 | 18 | 0,50 | 392 |
| **3** | **Traceability** | 31 | 31 | 2 | 1,00 | 961 |
| **4** | Gesetzgebung | 25 | 16 | 4 | 1,56 | 400 |
| **5** | Info. Rechte/Pflichten | 24 | 25 | 9 | 0,96 | 600 |
| **6** | Strategische Kooperation/bilaterale Beziehungen | 23 | 26 | 11 | 0,88 | 598 |
| **7** | Komplexität der Lieferkette | 23 | 21 | 11 | 1,10 | 483 |
| **8** | Strategische Ausrichtung/Geschäftsmodell | 29 | 22 | 3 | 1,32 | 638 |
| **9** | Gesamtkosten | 18 | 37 | 17 | 0,49 | 666 |
| **10** | Wissen (Stoffe/Verfahren) **Knowledge (substances/processes)** | 32 | 30 | 1 | 1,07 | 960 |
| **11** | Branchenstandards | 25 | 27 | 4 | 0,93 | 675 |
| **12** | Kooperation in der Lieferketten (vertikal) | 23 | 26 | 11 | 0,88 | 598 |
| **13** | Kooperationskonzepte/Allianzen (horizontal) | 25 | 24 | 4 | 1,04 | 600 |
| **14** | 3rd parties | 25 | 24 | 4 | 1,04 | 600 |
| **15** | Verfügbarkeit (Material, Information) | 23 | 23 | 11 | 1,00 | 529 |
| **16** | technischer Fortschritt | 24 | 18 | 9 | 1,33 | 432 |
| **17** | politische Situation Produktionsland | 22 | 11 | 15 | 2,00 | 242 |
| **18** | NGO's | 25 | 19 | 4 | 1,32 | 475 |

Driving Factor
Faktor with alternate positions
Driven Faktor

Highly Interconnected Factor
Meso Interconnected Factor
Weakly Interconnected Factor

# Scenario method (*H. Geschka*), adapted

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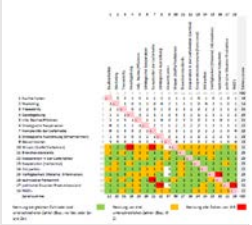
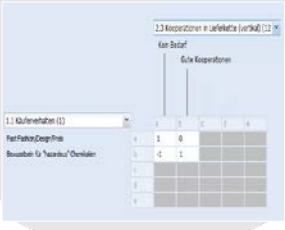


**Key 2: Consistency Analysis**



# 2030 Scenarios: Muddling through + Boldly ahead


**Muddling through-The Textile Industry in 2030**
**Status Report on SDG 12 of the Agenda 2030**

Still no pioneering industry for sustainable development

Despite the fact that Greenpeace and other NGOs are regularly drawing attention to e
pollution and health problems with their campaigns, especially in emerging markets


**Boldly ahead - The Textile Industry in 2030**
**Status Report for SDG 12 of the Agenda 2030**

In 2030 we look back on a textile sector that has managed to reposition itself. The goal of sustainable production is established in the minds of the customers. It is not a competitive advantage, but a self-evident component of process and product

# (3) Status quo revisited: **Common perspective**

- Lack of horizontal and vertical cooperation
- No unified standard for textile sector chemicals management
- No sector solution supporting traceability and knowledge as to the chemicals used in the supply chains.

➢ Micro-Level:
  - Company comittment [+ Consumer empowering]

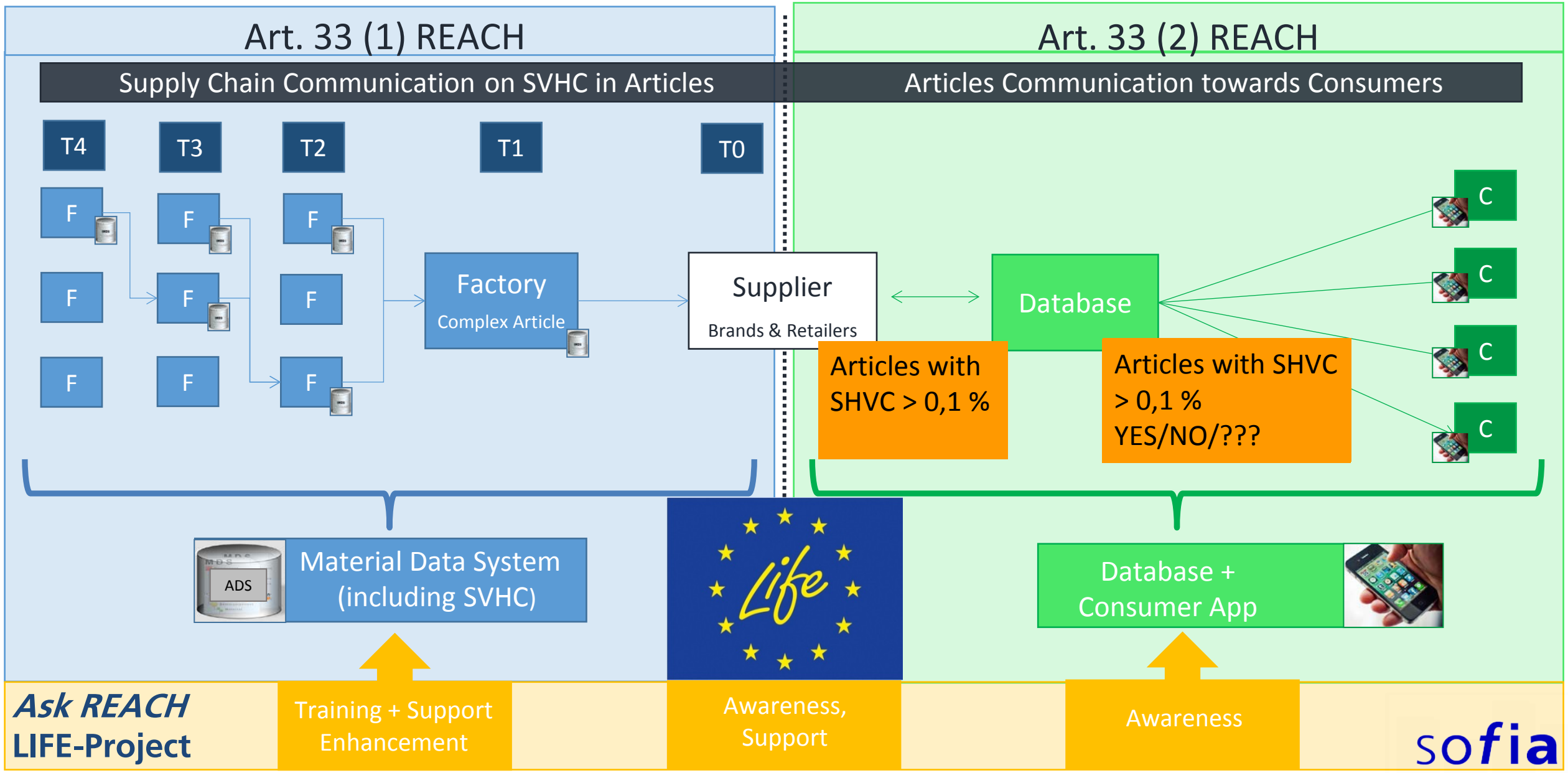
➢ Meso-Level: Sector specific approaches, stepwise

➢ Macro-Level: Normative impulses reiterated

# (4) **Responsive Institutional Design**
## Interim Results from the Research Atelier

0. Scenario method as learning tool to foster transformation
1. Supply Chain Strategies for sustainable chemicals management, not only for the global textile chains
   - Dissemination and testing of IT-tools (Art. 33(2) REACH): EU LIFE AskREACH Project (2017-2022)
2. Consumer Empowering (Art. 33(2) REACH)
   - EU-wide App + Database: Point of Sale EU LIFE AskREACH Project (2017-2022)

# LIFE Ask REACH approach: Enabling all actors




Data flow

T Tier | F Factory | ADS Article Data Sheet | DB Database | C Consumer | Member State Partner Action

"Supplier" = "Supplier of an article": Art. 3 No. 33 REACH, limited to brands and retailers

# (4) **Responsive Institutional Design**
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0. Scenario method as learning tool to foster transformation
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   - Dissemination and testing of IT-tools:
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2. Consumer Empowering
   - EU-wide App + Database: Point of Sale
     EU LIFE AskREACH Project (2017-2022)
3. Enforcement
   - ECHA-Forum: Art 33(1)+(2) Project by MS CA (2018) based on O5A ECJ judgement
   - CEFICs *Marco Mensink:* enforcement is "crucial"

# C. to be continued …

You are invited to share your views
with the sofia research team.

***Silke Kleihauer**, Julian Schenten, **Martin Führ**, Sina Wans*

Further details
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www.reach-helpdesk.info