Brief profile of subproject

IT Tools and Governance forTraceability

1. Challenges

Legal and (other) societal requirements for production processes and products are exerting increasing pressure on all players along the leather supply chains. They relate, for example, to the origin of hides and the use of chemicals in production, whereby these and other aspects can be linked to various environmental (e.g. use of resources such as land and air, ecotoxicology) and social indicators (working conditions). At the same time, there are market opportunities for companies with "sustainable" products, especially if this can be credibly communicated. In order to meet requirements by customers and legislation, and secure so-called "green claims", companies must be able to understand the process conditions in their specific supplier companies. This requires extensive control of supply chains (UNECE 2019).

For the management of chemicals in particular, it seems appropriate to establish structures that enable traceability of which substances are used in each process step. This would help companies to ensure they are compliant (e.g. meet legal thresholds) and could also create the basis for transparency towards different groups of actors. In addition, if traceability is established, it would allow companies to react effectively to cases of liability – and to better avoid these: If companies know which chemicals are present in their products, they can formulate a more targeted demand for the chemicals used in their supply chains. In addition, this knowledge may underpin (proactive) strategic and operational decisions. Traceability is thus a central component of corporate risk management. IT tools can effectively and efficiently map the necessary communication and control processes: For example, all actors in the supply chain could report to their respective customers the data on the chemicals used for products in the respective processing operations. Since such a system supports supplier evaluation and control, it ultimately also reduces the need for cost-intensive product tests (chemical analyses) as part of quality and compliance management.

Furthermore, an institutional framework that defines the "rules of the game" is needed, thus taking into account the incentives and impediments of all relevant actors. These rules ensure a sufficiently good quality of the communicated data and thus create confidence in the system - a basic prerequisite for the cost savings mentioned above.

Such an IT infrastructure and governance system is difficult for a single company to implement. Rather, in order to exploit its full potential, industry-wide efforts are required (sub-project "harmonization"). Not only brands and retailers may expect benefits from such system, but also their suppliers, if sector-wide standardized reporting requirements reduce the associated effort. In addition, more targeted demand can open up opportunities in the direction of a "more sustainable chemistry" for niche products.

2. Objectives & project description

The aim is to establish sector-wide structures to achieve traceability of chemicals used in the supply chains, using suitable IT tools and governance mechanisms. In doing so, the legitimate interests of the supply chain actors with regard to intellectual property must be protected. At the same time, transparency is crucial - also beyond the supply chains - with regard to the safe handling of chemicals and products.

To this end, the industry and other stakeholders must first find common definitions for "traceability" and, in relation to different addressees (within the supply chain, consumer, authorities etc.), for "transparency". In the short to medium term, gaps in the communication of information along the supply chains must be eliminated. Besides, communication approaches (Safety Data Sheets - SDS) require further harmonisation internationally. Feasibility studies assess the potential of IT tools and their governance. In this respect, different approaches are to be compared in terms of their advantages and disadvantages. The current debate on IT solutions, for example, focuses primarily on decentralized distributed ledgers ("blockchains") that are still being developed. However, all the above-mentioned requirements can also be achieved with already established IT solutions (e.g. material data systems - MDS). One immediate option could be to carry out a case study on leather with an MDS as part of the EU project "LIFE AskREACH" at the Darmstadt University of Applied Sciences.

Traceability of chemicals necessarily implies traceability of the hides (in the different processing stages). Consequently, the solutions available for this purpose, which are used in the product (e.g. DNA tagging), on the product (e.g. RFID) or beyond (e.g. certificates) must also be investigated.

3. Research and transfer questions:

What information must be passed on along the leather supply chain; what information must be made available to other actors (consumers, authorities)?
Which technologies (hardware / software) are available (or required) to enable traceability along the leather supply chain?
Which structures and processes (organisational and inter-organisational measures, links between existing systems, technical standards) have to be established to allow for traceability?
What are the requirements for IT tools, which information must be collected and presented in which way?
Which framework conditions (governance) support / guarantee traceability along the leather supply chains?

4. Structure

A tandem consisting of one representative from the Darmstadt University of Applied Sciences and one from practise coordinates the project. Anyone interested can participate in the project.

The cooperation takes place via meetings / web conferences / workshops.

Project group coordination

Representing Darmstadt University of Applied Sciences: **Julian Schenten**

Representing the practise: **#tbd**

Development plan:

Essential project steps (partly running in parallel)	Formats
0. initiate project group	Agreement on short profile, kick-off webinar
1. define terms (transparency, traceability etc.)	desk research, (preparatory) surveys, (online) webinar
2. define requirements for IT tools ensuring traceability & compliance (optional and mandatory criteria in user stories)	desk research, (preparatory) surveys, (online) webinar
3. (further) development of business models enabled by traceability	Analysis of incentives and impediments of all relevant actors, desk research (supported also by preliminary work in other projects)
4. define a governance framework: Which reporting obligations apply to whom? How can quality and reliability of the generated data be ensured?	Analysis of incentives and impediments, (preparatory) surveys, (online) webinar
5. IT modelling of processes along the leather supply chain	
6a. Analyse existing IT tools and exchange formats: do they meet the requirements of the leather industry?	Desk research (supported also by preliminary work in AskREACH)
6b. Case studies of leather products	Case study with accompanying scientific evaluation
7. analyse tagging systems for the real products	Desk research, evaluate case studies if necessary
8. further develop existing IT systems as required	