h_da
HOCHSCHULE DARMSTADT
UNIVERSITY OF APPLIED SCIENCES

s:ne
SYSTEM INNOVATION FOR
SUSTAINABLE DEVELOPMENT

Leather-Design-Guidelines for Sustainable Development **Review Phase 2**

Results of the 2. Workshop on December 3th 2020 and Call for Review | Release: January 2021

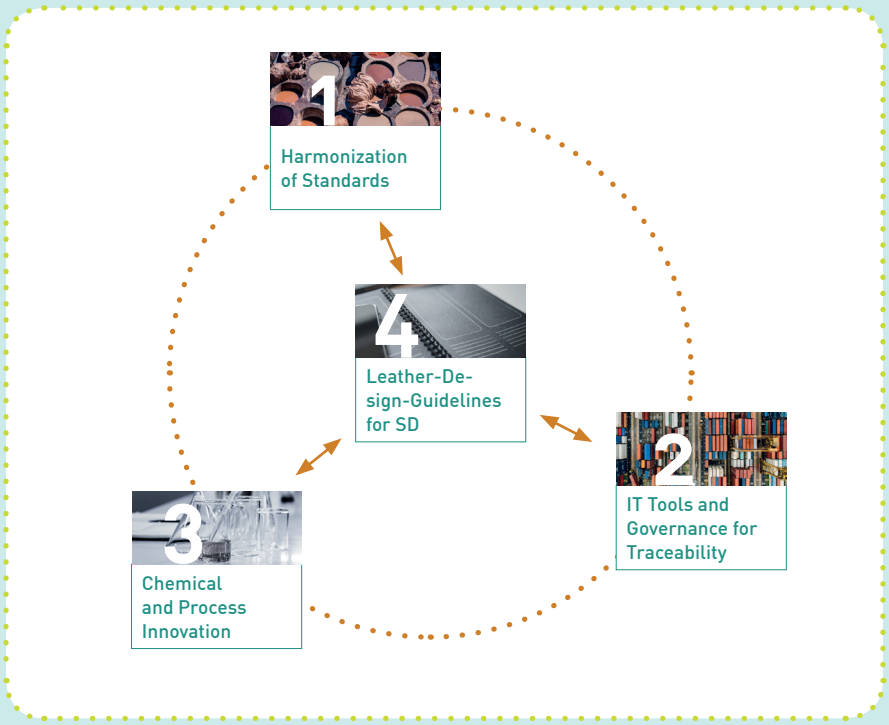
Background:
This document illustrates the interim results of the subproject „Leather-Design-Guidelines for Sustainable Development" as part of the research project "System innovation for a more sustainable leather chemistry". The key insights will be described based on the results of the workshop on December 3th. This paper aims at elaborating and summarizing the work done so far and building the basis for the next workshop in Q1 2021.

ORGANIZATIONAL REMARKS
Project members are kindly asked to **review and comment on this document** and to **fill out the attached PDF** to ideate and collect methods and examples.

The project group agreed on being transperent regarding the overall project progress and interim results and the parties involved. The university team will therefore present parts of this process and a list of parties involved in publications such as its website and progress reports.

1. Links between the subprojects

Subproject 4 „Leather-Design-Guidelines for Sustainable Development" is one out of four subprojects being part of the overall Project "System innovation for a more sustainable leather chemistry". Both in informal discussions and during the second workshop several linkages between subproject 4 and the other three subprojects were identified and elaborated. In essence, it became obvious that effective impulses from the overall project as well as the subprojects can only be achieved by using the synergies of a joined effort to change the leather supply chains. It is therefore paramount to explore and act on connecting and complementing aspects of each subproject.



Innovative Hochschule
EINE GEMEINSAME INITIATIVE VON
Bundesministerium für Bildung und Forschung
Gemeinsame Wissenschaftskonferenz GWK

1.1 Design-Guidelines & Harmonization of Standards

Being the key issue of subproject 1, global standards on leather and leather chemistry by default relate to several aspects that are considered during the design and development process of leather goods. In workshop 2, participants raised the question, to what extent design and construction can or should be included in global standards (e.g. by certain specifications). Furthermore, subproject 4 (and in part subproject 1) needs to consider how to handle connected products and materials such as composite materials or shoes that connect rubber soles and leather parts by clues or molding.

With regards to communications, ideas were mentioned to, for instance create labels that indicate "good design" in terms of sustainable development or add CE-criteria that refer to design features.

Harmonization of Standards

Leather-Design-Guidelines for SD

As with most of the above mentioned aspects and in particular with policy developments in the EU in mind, the topic of circular economy might be the biggest link between global standards and design guidelines. Design plays a crucial part in recyclability of products and related business models.

1.2 Design-Guidelines & IT-Tools for Governance and Traceability

Tracing substances and the origin of raw material can create competitive edge - however there is no lunch for free. With regards to the design of a product, this idea raises the question of what information should be presented how to consumers and other stakeholders along the supply chains.

Workshop participants saw one of the central advantages and connections in substantiating green claims by traceability which in turn can be seen as a strong resource for marketing and design. Considering related traceability effort in other product groups (e.g. "follow fish" / "follow food") both technology and user-experience need to be taken into account in order for traceability to be successful.

IT Tools and Governance for Traceability

Leather-Design-Guidelines for SD

Concerning the emerging trend of circular economy, traceability might be seen as a requirement in the leather sector to actually enable circular business models.

1.3 Design-Guidelines & Chemical and Process Innovation

Chemical and process innovation is as an essential driver for a more sustainable leather supply chains. This raises the question to what extent a "more sustainable leather chemistry" might affect material properties of leather (e.g. aesthetic and functional aspects). Vice versa, participants mentioned that the design of a product influences the choice of tanning methods. Defining "more sustainable leather" will be largely driven by issues of leather chemistry.

Chemical and Process Innovation

Leather-Design-Guidelines for SD

2. Structure of the Guidelines

As already discussed in the first review paper, an initial structure for the leather-design-guidelines had been developed. Throughout the first review phase, this structure has been elaborated. The interim results of this process is the table below which represents the overall outline of the guidelines.

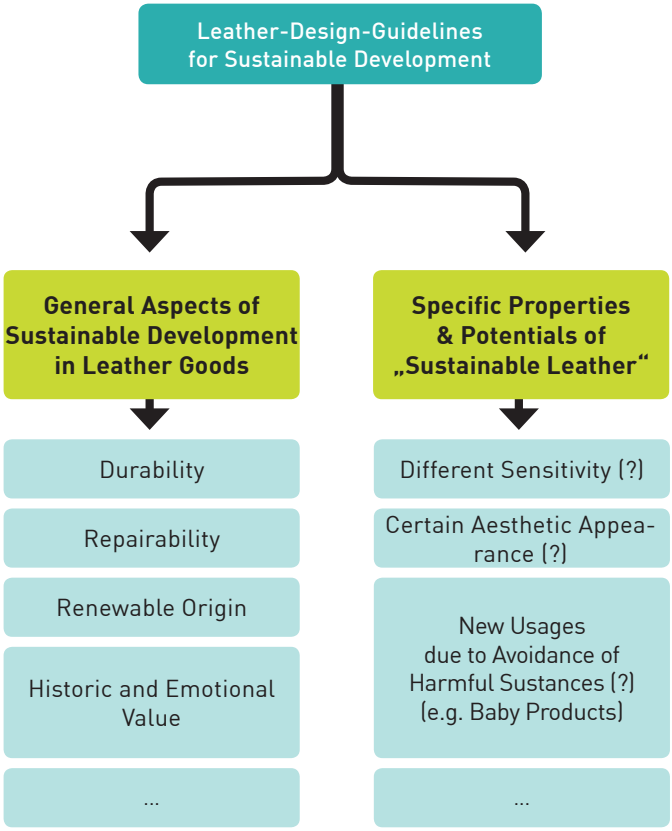
	Technical Features	**Conceptual Features**	**Formal-aesthetic Features ("Design")**	**Business Model Features**	**Material Selection** (leather & supportive materials - e.g. yarns)	**Product ecosystem** (products and chemicals appart from leather good that support SD)	**Marketing & Communication**
Design for Longevity							
Design for Reuse							
Design for Recycling							
Design for Process Optimization							
Risk management (Health / Environment)							

3. Two-Layer Structure of the Guidelines

Through the current process, it became obvious that the guidelines focus on two basically different aspects concerning more sustainable leather products. Firstly, the guidelines will need to consider all aspects of in how far leather in general has properties and potentials that support sustainable development. For instance, the genuine durability and repairability of leather is one of the key advantages compared to other materials. However, this only applies if products are designed accordingly.

Secondly, as discussed in the context of this project, the idea of what we currently call "more sustainable leather" refers to leather that is produced in a way that does not cause adverse effects to humans and the environment. Although this term needs to be defined much more in details, one might assume that "more sustainable leather" comes with specific properties and potentials that differ from some of the usual types of leather. In this case, these characteristics should be considered in depth in the design guidelines, exploring in how far they can be used as unique selling propositions and guiding aspects of the design process. However, the process of defining "more sustainable leather" is one that will be conducted across all four subprojects. Currently, subproject 3 is working on a framework to evaluate chemicals and processes contributing to this definition phase.

Due to this lack of definition, this subproject will focus for the time being on general aspects of leather and will extent this perspective ones the definition phase has advanced.



4. Collection of Methods and Examples

Continuing the process from the first review phase, participants of the second workshop collected and ideated specific design methods and examples at the crossings of the two axes of the guidelines structure (see 2). This process is still ongoing and can be supported by filling out the attached interactive PDF.

4.1 Design for Longevity

- optimum material selection
- considering position of seams / overall construction of the product
- customer education - how to treat a leather product to extend its lifetime
- prevent bending damages (e.g. in shoes)
- timeless design (vs. fast fashion)
- increasing consumer's knowledge concerning longevity
- focussing on material quality during the design process (investing in materials)
- quality checks for stability
- modular products (e.g. shoe with changeable surfaces)
- define a „minimum lasting time" of a product and build all materials on that
- invest more budget for assembly to avoid easy breaking

4.2 Design for Reuse

- finishing of the leather can be taken off easily and re-finished
- „updating" the leather by erasing and renewing colour
- modular leather parts (e.g. exchangable leather car seats from one car to another)

4.3 Design for Recycling

- dissolving stiches in connections
- making use of historical techniques (e.g. wooden pegs to connect sole to the shoe)
- turning leather into new materials (e.g. fertilizer „ecotan"; bonded leather; ...)
- using leather in the construction (e.g. specifically the foundation) of buildings
- using product-service-systems to enable reuse and recycling within own value chain (e.g. shoe-rental)
- reduction to as few materials as possible

4.4 Design for Process Optimization

- local production (short distances)
- supporting community-based production (e.g. „fibershed.org")

4.5 Design for Health and Environment

- promote natural care products for leather (e.g. bees wax, jojoba oil, etc.)
- use harmless chemicals (e.g. ZDHC)
- natural coating for leather
- consider rebound effects
- sustainability analysis for additional materials

Additional Methods and Examples

Note: Attached to this PDF file you find an interactive 1-page-template for collecting further methods and examples. We kindly encourage you to fill out this template refering to any existing or potential design and construction methods for leather products with regards to sustainable development and the categories we have outline in the workshop.
Feel free to fill out several PDFs according to your knowledge.

Next steps

1. Please read this report carefully and comment on any aspect you assume to be important (e.g. by sending an annotated PDF-file or a mail to **jonas.rehn@h-da.de**).

2. We kindly ask you to fill out the attached interactive PDF to collect further methods and examples.

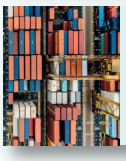
The next workshop will take place in february or march 2021 (doodle follows).
For organisational questions, please refer to Karen Lehmann (lehmann@schader-stiftung.de).

Other subprojects

In several subprojects, potential solutions are to be examined to foster „more sustainable leather chemistry". Together the subprojects address different aspects of the system innovation required in this respect. Any person or organisation wishing to contribute to the achievement of the objectives in the subprojects can participate.

Subproject #1
Harmonisation of standards for a "more sustainable" leather chemistry
Dr. Julian Schenten | julian.schenten@h-da.de

Klick here to go to **subproject #1**



Subproject #2
IT Tools and Governance for Traceability
Dr. Julian Schenten | julian.schenten@h-da.de
Eleni Kaluziak | eleni.kaluziak@h-da.de

Klick here to go to **subproject #2**

Subproject #3
Chemical und Process Innovation
Prof. Dr. Frank Schael | frank.schael@h-da.de

Klick here to go to **subproject #3**

Subproject #4
Leather-Design-Guidelines for Sustainable Development
Dr. Jonas Rehn | jonas.rehn@h-da.de

Klick here to go to **subproject #4**

h_da
HOCHSCHULE DARMSTADT
UNIVERSITY OF APPLIED SCIENCES
s:ne
SYSTEM INNOVATION FOR SUSTAINABLE DEVELOPMENT

Innovative Hochschule

EINE GEMEINSAME INITIATIVE VON
Bundesministerium für Bildung und Forschung
Gemeinsame Wissenschaftskonferenz GWK

Schader Stiftung

Further information concerning the project to find under:
► sne.h-da.de/leather-chemistry