Enhancing Traceability and Transparency of Sustainable Value Chains in the Garment and Footwear Sector

Business Process Analysis for Sustainability and Circularity in the Leather Value Chain
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Part I. BPA for implementation of traceability and transparency

1. Introduction

“Business Process Analysis (BPA) is a methodology for the analysis of a business with a view to understanding the processes and improving the efficiency and effectiveness of its operations. It describes the processes involved, parties participating, information exchanged, and documents produced.”1 Business process analysis can be used to:

- Document and analyse existing processes
- Identify problematic areas and
- Identify opportunities for improvements.

The information collected and analysed during a BPA depends upon the objective(s) for which it is being undertaken.

This report focuses on the use of BPA to support the implementation of traceability and transparency in value chains. In other words, it looks to help the user identify, based upon their objectives, which information needs to be collected, where and by whom in the value chain.

Improving traceability and transparency has become a priority in many industries. Consumers, governments and civil society are demanding responsible business conduct and are calling upon industry to identify and address actual and potential impacts in the areas of human rights violations, adverse environmental effects, and human health hazards. The only cost-effective way to meet these demands is through the use of traceability systems that are linked with the collection of transparency information.

The implementation of traceability and transparency systems helps companies to better manage sustainability and reputational risks. As added benefits, companies can also design and use these systems to address financial and operational risks, respond more effectively to unforeseen disruptions, conform with applicable laws and regulations, ensure product quality and safety and combat counterfeits. On the other side, greater transparency empowers consumers to make better informed consumption choices, as they have more reliable information about the sustainability and circularity claims of products and processes.

This report aims to provide both a general overview of business process analysis (BPA) and practical guidelines for its implementation. The emphasis is on the use of BPA to support implementation of traceability and transparency in circular value chains, with a special focus on the garment and footwear industry.

At the same time, this is not a guideline on how to implement traceability and transparency – it is a guideline on how to undertake a detailed analysis of business processes that will support the implementation of traceability and transparency. Implementation guidelines can be found in UNECE Recommendation No. 46: Enhancing traceability and transparency of sustainable value chains in the garment and footwear sector and its accompanying guidelines (document ECE/TRADE/C/CEFACT/2021/10).2

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In order to develop working systems that support sustainable value chains through traceability and transparency, the following questions need to be answered:

1. How do these value-chains work today and what is the data currently exchanged between participants?
2. What data is needed in order to support the desired sustainability compliance claims?
3. Where is there existing data that can be used to support traceability and the verification of claims?
4. Which data is currently missing and which changes need to be made in order to collect and record this additional, needed information?

To document the answers to these questions in a practical way, three types of business process analyses (BPA) are used in this report.

1. The first BPA provides a model for the **generic** traceability and transparency process. It attempts to identify what data are needed to establish traceability and transparency and where and when that data should be collected in any product value chain.

2. The second BPA analyses **existing** processes in a sector. It identifies the existing partner roles, processes and activities inside a value chain as well as existing exchanges of data and the content of those data exchanges. This BPA process is not affected by traceability processes (unless traceability is already implemented) because it focusses exclusively on the current situation.

3. The third BPA process takes the first BPA and compares it to the second BPA. Then it marks on the second BPA when and where, in existing value chain processes, the data needed for traceability and transparency is already being collected and if changes are needed in order to collect additional data or to collect it at a different time or place.

The first BPA is described in this part and can be re-used in the analysis of any product value chain. The second and third BPA processes need to be repeated for every value chain. This report explains how to undertake these BPAs and provides an example for leather goods.

In the detailed example, only the diagrams for the third BPA are shown because they are the same as for the second BPA, just with additional information added; therefore, including the second BPA would be repetitious.

The results from these BPA processes can be used as inputs to:

- Guidelines for cost-effective implementation, supporting the identification of changes that will allow and improve the collection of needed traceability and sustainability data within day-to-day operations.
- Further data analysis processes, where specific data elements and code lists are decided upon by software system implementors.

**Terminology**

**Traceability** is understood as “the ability to trace the history, application or location of an object” in a value chain. In this context, it is defined as the ability to “identify and trace the history, application, location and distribution of products, parts and materials to ensure the reliability of sustainability claims in the areas of human rights, labour (including health and safety), the environment and anti-corruption”; and “the process by which enterprises track materials and products and the conditions in which they were produced through the supply chain”.

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Transparency relates directly to relevant information being made available for all elements of the value chain in a harmonized way, which allows for common understanding, accessibility, clarity and comparison.\(^6\)

Sustainability\(^7\) in the context of garment and footwear value chains means that all activities, throughout a product’s life cycle, take into account their environmental, health, human rights and socioeconomic impacts, and their continuous improvement.\(^8\)

In this document claims refer to sustainability compliance claims about products, processes or companies such as “100% organic cotton” or “No harmful chemicals used” or “Made in factories that implement good labour practices”. “Claim” is also the term used in the Recommendation and Guidelines\(^9\) developed under this project. The Guidelines contain a detailed explanation of claims and their contents which is partially summarized below in chapter 3.

Traceable asset is also defined in the Recommendation and Guidelines as “any item (for example an object, a product or other traded item or a service) that needs to be tracked along a supply chain.”\(^10\) Then, for the purposes of transparency and sustainability, additional information is linked to the tracking information for traceable assets (such as the origin of materials, processes used, product or process certifications, etc.).

2. What is a Business Process Analysis (BPA)?

Before looking at how to use business process analysis to support traceability and transparency, it is important to have a common understanding of what is meant by business process analysis and how we are using that term in this document.

As described in the introduction, “Business Process Analysis (BPA) is a methodology for the analysis of a business with a view to understanding the processes and improving the efficiency and effectiveness of its operations. It describes the processes involved, parties participating, information exchanged, and documents produced.”\(^11\) Business process analysis can be used to:

- Document and analyse existing processes
- Identify problematic areas and
- Identify opportunities for improvements.

2.1 The analysis process: 5 steps

A complete business process analysis consists of 5 steps, each of which builds upon the previous step. A brief overview of these 5 steps is as follows:

1) Prepare a Use Case diagram identifying the principal processes for transparency and traceability and the participants. An example can be found in figure 5.

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\(^6\) European Commission, A Background Analysis on Transparency and Traceability in the Garment Value Chain (2017).

\(^7\) “Sustainability” refers to the ability of an activity to support “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. This implies that the activity also takes into account the needs of “People, Planet, Prosperity, Peace and Partnership”, as outlined in the United Nations Sustainable Development Goals (see A/RES/70/1).

\(^8\) UNECE, Accelerating action for a sustainable and circular garment and footwear industry: which role for transparency and traceability of value chains? Policy Paper (2020).


2) For each process, develop an **Activity Diagram (AD)** showing the participants in the process, the actions/activities undertaken, the sequence of actions and any information flows. There are many examples in this document, the first being figure 6.

3) For each Activity Diagram prepare a **Business Process Description (BPD)** which is a table that describes in text, “the story” behind the diagram as well as any information exchanges, including documents. When preparing a business process description, examples of documents and information exchanges should be collected. There are also many examples of BPDS in this document, the first being table 4.

4) **List of Document/Information Exchanges** – This is based on information in the Business Process Descriptions and lists all of the information (including documents) exchanged for the Use Case and identifies where the same information is exchanged in different business processes (activity diagrams). An example can be found in annex 1.

5) For each of the Information Exchanges listed in step 4, prepare a **List of the Data Elements** (for example, date of delivery or product quantity) included in that information exchange. An example can be found in annex 2.

A much more detailed explanation of business process analyses and how to implement them can be found in the *Business Process Analysis Guide to Simplify Trade Procedures* prepared by UN/ESCAP and UNECE.12

For the purposes of this document, we will only be looking at the first three steps. The last two steps go into a great deal of detail and are essential for building automated systems where it is important to define each data element that needs to be collected and exchanged. This document, however, has as its purpose to identify exchanges of information at a higher level.

3. **BPA traceability and transparency (TT) objective(s)**

The first step, before beginning work on a business process analysis is to identify the objectives – Why is this BPA being undertaken? This report focuses on transparency objectives that support sustainability - with the understanding that without traceability there is no transparency.

Traceability in support of sustainability requires the collection of two kinds of information. The first is the basic traceability information (see chapter 4, section 2 below), the additional information to be collected depends entirely upon the sustainability objectives of the value chain partners.

Sustainability objectives may include both support for claims that are made to customers and proof of conformance with regulatory obligations that support sustainability. Examples of such regulatory requirements include, in some jurisdictions, requirements for the use of legally logged timber or for goods to have been made without the use of slave labour.

At the same time, an organization may have additional objectives, beyond transparency and sustainability, for undertaking a BPA and/or establishing traceability. Examples of such objectives include simplifying processes, automating information flows and optimizing value chain operations.

The actions that will be taken in a value chain to support sustainability objectives can be summarized in claims.

A sustainability claim is a claim that covers one or multiple sustainability dimensions (economic, environmental, social). In the rest of this document “sustainability claims” are referred to as just “claims”.

Companies should select the claims they wish to make about products based on value chain risk analysis, corporate objectives, access to data that will verify the claims13 and their commitment to responsible business conduct and due diligence.14

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13 Sometimes a company and its suppliers may follow good practices but there is no access to verifiable data to prove this or the cost for collecting such data would be prohibitive.

Claims should be easy to understand for value chain partners and their employees as well as for consumers. This will help to motivate their participation. Claims may need to comply with legal requirements. In addition, organizations that develop sustainability standards and guidelines often have rules about how they can be referenced in claims.

A claim should contain the following elements:

- **A clear objective** which sets out the purpose of tracing, and the sustainability requirement(s) to be met to achieve the purpose.
- A description of the **traceable asset** for the proposed claim.
- **A description of the proposed claim** which supports the objective and should be understandable, clearly stated and defined in terms of the physical characteristics or process(es) connected to the traceable asset.
- **The defined verification criteria** should be objective and measurable. They can be from a standard, a guideline or other document which describes the sustainability characteristics that a product, process or organization must have in order to conform to the claim. The criteria are what an auditor compares information against to determine if due diligence has been followed in ensuring a claim. It is also important, even in these beginning stages, to start to define the **verification process** that will eventually be used to prove that the verification criteria have been met. For example, will certifications or inspections be required?

When undertaking the second BPA process which looks at the existing value-chain processes, the BPA team can already start to ask itself where these verification processes need to be carried out. This will make it easier to identify basic traceability data and sustainability data points during the third BPA process which identifies what is needed for the future.

A suggested general format for claims is the following: [traceable assets] comply with [claimed state] in accordance with [verification criteria] for/to support [objective].

<table>
<thead>
<tr>
<th>#1 Example of a sustainability claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>(From brand X): The cotton in this <strong>shirt</strong> is at least <strong>95% organic</strong> certified by Y certification body (which is a third party) in accordance with (XYZ) <strong>standard</strong> for ensuring <strong>responsible business conduct</strong>.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>#2 Example of a sustainability claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>(From company Y): This <strong>denim</strong> is made of <strong>40% recycled cotton</strong> certified in accordance with (XYZ) <strong>standard</strong> and is finished with a new process that uses <strong>60% less water</strong> than our previous process in accordance with (XYZ) <strong>standard</strong> for <strong>reduced environmental impact</strong>.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>#3 Example of a sustainability claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>(From company Z): These <strong>shoes</strong> were manufactured in <strong>factories free of gender discrimination</strong> which have been audited as compliant with (XYZ) <strong>standard</strong> for the <strong>prevention of discrimination and sexual harassment in the workplace</strong>.</td>
</tr>
</tbody>
</table>

More detailed information on how to formulate claims, as well as on verification criteria and processes can be found in UNECE Recommendation No. 46: Enhancing traceability and transparency of sustainable value chains in the garment and footwear sector and its accompanying guidelines.16

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4. The generic traceability and transparency BPA model

This BPA model defines a generic traceability and transparency process that can be used across multiple value chains and sectors. It attempts to identify three types of information:

1) The data needed to establish traceability.
2) The data needed to verify sustainability (i.e. the data to support any claims that are being made).
3) Where and when the above data should be collected in a value chain.

In order to understand the generic traceability and transparency model presented in this first BPA, it is important to first understand the generic value chain partners used in the BPA as well as the data that needs to be collected for traceability and transparency. These are described in the next two sections.

They are followed by the BPA itself which consists of a diagram showing all of the processes and participants (the use case diagram) and then, for each process, a detailed map of its activities (the activity diagram) and a table with a textual explanation of those activities (the business process description).

Added to the BPA, which would usually consist of only these diagrams and tables, there are longer descriptions of the generic processes in order to help the reader better understand the context and how these processes may be relevant to their own activities.

4.1 Generic value chain participants

The BPA model for generic traceability and transparency in value chains uses a set of standardized participants since it is designed for use with any product value chains. All parties who participate in a value chain should be able to fit within the description of one of these standard participants. The table below lists them, with their definitions.

Table 1

<table>
<thead>
<tr>
<th>Participant</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer (including consumer)</td>
<td>Customers are often the customers of the traceability system requestor, but they can also be suppliers; so the customer could be the weaver who is buying organic cotton thread, or the final customer who is purchasing the garment. In other words, it is whoever is purchasing goods, based (at least in part) on a claim made by the seller.</td>
</tr>
<tr>
<td>Product Guardian</td>
<td>A party, such as a transporter, warehousing party, agent/trader, brand owner/retailer, or consumer that makes no changes to a product or raw material; they only store, transport, sell, or purchase it. Their possession of the product is recorded in order to establish the chain of custody, since product contamination or substitution could take place during their custody.</td>
</tr>
<tr>
<td>Provider of IDs (a kind of service supplier)</td>
<td>A party that supplies identifiers. For a product or component to be traced, it must have a unique identifier that cannot be duplicated or moved from one (compliant) product to another (which may not be compliant). Parties and locations in the value chain also need to have unique IDs. This value chain partner’s role is to provide the identification. The role can be carried out by a Transformation Partner, but it could also be done by a certifier or an inspection organization or an association that specializes in identifiers (such as GS1) or a government (for example, if a company is identified by its tax ID).</td>
</tr>
<tr>
<td>Repository Party</td>
<td>The traceability system (repository) where all business partners involved in the value chain record the 5-W information (defined under traceability information</td>
</tr>
</tbody>
</table>

Based on the table in section 2.3 of Business Requirements Specification (BRS) for Traceability and Transparency in the Textile and Leather Sector, Part 2: Use Cases and CCBDA Data Structures.
For data retrieval, the repository should be able to provide access to only a subset of information, depending on the identity of the traceability/transparency information requestor.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suppliers/ Service Providers</td>
<td>With the exception of transporters and warehouses (who are Product Guardians), a person or company that provides something that is needed, such as services, feed, equipment, materials, intermediary products and finished products used as inputs, chemicals etc.</td>
</tr>
<tr>
<td>Traceability System Requestor</td>
<td>This actor requests that a traceability process be implemented. This could be any down-stream value chain partner that wants to make a “claim” to its clients. Therefore, it could be the Spinner, Weaver, Manufacturer, or a Brand Owner/Retailer.</td>
</tr>
<tr>
<td>Traceability / Transparency</td>
<td>A person, organization or authority needing traceability and transparency information about product(s) for their sustainability statement(s) (claims) regarding environmental, health, human rights and socioeconomic impacts. If the products being traced are regulated, the data could also be used to verify compliance and enforce laws.</td>
</tr>
<tr>
<td>Information Requestor</td>
<td></td>
</tr>
<tr>
<td>Transformation Partner</td>
<td>A party that processes or changes one or more inputs to create different outputs (i.e. Farmer, Ginner, Spinner, Weaver, Dyer, Manufacturer, Subcontractor, Tanner, Recycler, etc.). Transformation Partners include those who undertake post-consumer recycling or reuse of products.</td>
</tr>
<tr>
<td>Validation Body</td>
<td>A party which inspects planned controls and verification measures in a value chain and validates that they are appropriate and will meet the objectives that have been set. Validation Bodies are often the same organizations that undertake verification activities (see below).</td>
</tr>
<tr>
<td>Verification Body</td>
<td>A party that verifies that what has happened in the value chain has taken place according to the rules agreed in advance. These bodies provide the data to prove that processes in the value chain have supported claims made about products or entities/organizations. In addition to auditors, these value chain partners could include certifiers, inspectors, brand auditors or self-auditors.</td>
</tr>
</tbody>
</table>

Figure 1 shows how some of the typical participants in textile and leather value chains might be classified using the above generic participant descriptions. It is worth noting that customer is listed separately above because they could be a transformation partner who is buying inputs to transform, or they could be a consumer or brand owner who is a product guardian. In addition, the suppliers of IDs are listed separately above, even though they are often service suppliers because, in some cases, they can be government bodies (for example if a tax id is used as an identifier).
4.2 Traceability and transparency (TT) information

Traceability in support of sustainability requires the collection of two types of data: basic traceability data and sustainability data.

For the same type of product, the data needed for basic traceability do not vary much because traceability records product flows along the value chain (inputs to processes, outputs which then become inputs, the new outputs, etc); processing (what was done to inputs, outputs and products, when, where and by whom), and, optionally, chain of custody (who, at every moment along the value chain, had possession of the inputs, outputs and final products).

However, the data needed to verify sustainability can vary widely even for the same product, depending upon the claim being made about the product. For example, the collection of sustainability data for a claim such as, “Made of 100% cotton” will be focused on raw materials. In contrast, data collection for a claim like, “Made in factories that implement good labour practices” will be focused on conditions in factories.

Basic traceability data is the foundation of traceability and transparency systems because, without it, further data for verifying sustainability cannot be located. Described in more detail below, this data allows the identification of those parties who had custody of a product, when and where, as well as those processes to which the product was an input or an output. Basic traceability data needs to be recorded by all value-chain partners and shared among all value-chain partners who need it for business purposes (for example identifying supply chain bottlenecks) or for finding sustainability data.

Sustainability data identifies information about parties, processes and/or products that allows sustainability claims to be verified. For example:

- Does a manufacturer follow good labour practices?
- Has a manufacturing process been certified as environmentally responsible?
- Has a product been inspected and found free of harmful chemicals?

This kind of information is controlled by the parties involved (slaughterhouses, tanneries, manufacturers, etc.) and is exchanged bi-laterally with transparency information requestors, usually in an automated fashion, but this can also be done via email or on paper. This data is not public information. The business partners maintain control over access to the data.

---

18 Figure from: Business Requirements Specification (BRS) for Traceability and Transparency in the Textile and Leather Sector, Part 1: High-Level Process and Data Model.
4.2.1 Basic traceability data

In order to establish traceability, the following basic data, covering the 5-W questions, needs to be registered in a shared data resource (such as a distributed database, a cloud database or a blockchain) at each processing and transfer point (called an “event”):

WHAT? The traceable asset, identified using a unique ID for each product, batch and/or logistics (shipping) unit

WHEN? The date of transformation, physical transfer or change in ownership

WHERE? The place of transformation or production

WHO? The value-chain partner’s unique ID (for example a country ID with a national VAT number), and, if relevant, that of the facility

WHY? An ID for the production method used and/or an ID for the underlying commercial contract (such as an invoice number)

Having established basic traceability using the 5 Ws, it is then possible to establish bilateral communications for the exchange of sustainability data, such as inspections, certifications, and test results, in other words, the data which allows a claim about sustainability to be made. Figure 2 further illustrates the 5-Ws and is from the UN/CEFACT Business Requirements Specification for Traceability and Transparency in the Textile and Leather Sector, Part 2: Use Cases and CCBDA Data Structures.\(^\text{19}\)

Figure 3 then shows specific examples of 5-W data for collection and recording in a shared resource (for example, on the cloud, in a blockchain, in a shared database, etc.).

Figure 2
The 5-W data

---

4.2.2 Sustainability Data

Table 2 shows different kinds of sustainability data that may need to be collected in order to support claims. This data is typically controlled (and often stored) by the party involved, who is the only one having direct access. For example, the inspection certification of a farm would be controlled by the farm and the inspection certification of a manufacturing plant would be controlled by the manufacturer.

Table 2
Sustainability data matrix

<table>
<thead>
<tr>
<th>Product-related information</th>
<th>Process-related information</th>
<th>Facility-related information</th>
<th>Transport-related information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Origin:</strong></td>
<td>Process inputs and outputs:</td>
<td>Economic operator details:</td>
<td>Economic operator details:</td>
</tr>
<tr>
<td>- Country and/or region and/or other origin criteria</td>
<td>- Input volumes/weights</td>
<td>- Supplier</td>
<td>- Transport or freight forwarding company</td>
</tr>
<tr>
<td><strong>Composition:</strong></td>
<td>- Output volumes/weights</td>
<td>- Manufacturer</td>
<td>- Owner/operator of the means of transport</td>
</tr>
<tr>
<td>- Materials components</td>
<td>Process events occurrence:</td>
<td>- Subcontractor</td>
<td></td>
</tr>
<tr>
<td>- Product components</td>
<td>- Data</td>
<td>Facility’s value chain activity (spinning, tanning, etc.)</td>
<td></td>
</tr>
<tr>
<td><strong>Technical specifications:</strong></td>
<td>- Time</td>
<td><strong>Location:</strong></td>
<td><strong>Transportation (IDs):</strong></td>
</tr>
<tr>
<td>- Materials specifications</td>
<td>Process identification (IDs):</td>
<td>- Main production unit(s)</td>
<td>- Logistics units</td>
</tr>
<tr>
<td>- Product specifications</td>
<td>- Process (product) inputs</td>
<td>- Subordinate production unit(s)</td>
<td>- Conveyance means</td>
</tr>
<tr>
<td><strong>Product identification (IDs):</strong></td>
<td>- Process (product) outputs</td>
<td>- Address</td>
<td>(truck, railcar, ship, container if applicable)</td>
</tr>
<tr>
<td>- Individual product/material</td>
<td>- Type of process</td>
<td>- Physical coordinates</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Equipment (machine)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

- Product/material batch
- Product/material trade unit

**Quality:**
- Characteristics
- Inspections
- Certificates/audit reports
  (product/materials)

**Other management information:**
- Cost(s)
- Sales data
- Surplus or damaged materials/product

**Sustainability:**
See table below on sustainability data

**Sustainability-related information**

<table>
<thead>
<tr>
<th>Environment-related information</th>
<th>Human rights and labour-related information</th>
<th>Health and safety-related information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous chemicals</td>
<td>Child labour</td>
<td>Unsafe workplaces and work practices</td>
</tr>
<tr>
<td>Pesticide and fertilizer use</td>
<td>Forced/compulsory labour</td>
<td>Inadequate personal protective equipment (PPE)</td>
</tr>
<tr>
<td>Water use</td>
<td>Trade unions and collective bargaining rights</td>
<td></td>
</tr>
<tr>
<td>Water pollution and wastewater management</td>
<td>Discrimination (women and minorities)</td>
<td></td>
</tr>
<tr>
<td>Waste production and management</td>
<td>Sexual harassment</td>
<td></td>
</tr>
<tr>
<td>End-of-life:</td>
<td>Exploitation of home workers</td>
<td></td>
</tr>
<tr>
<td>- Durability</td>
<td>Working conditions:</td>
<td></td>
</tr>
<tr>
<td>- Recyclability</td>
<td>- Wages</td>
<td></td>
</tr>
<tr>
<td>- Reusability</td>
<td>- Working times</td>
<td></td>
</tr>
<tr>
<td>Air pollution</td>
<td>- Contracts (with workers and/or subcontractors)</td>
<td></td>
</tr>
<tr>
<td>Greenhouse Gas (GHG) emissions:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Direct GHG emissions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Transport CO2 emissions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy consumption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil degradation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deforestation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Facility & economic operator identification (IDs):**
- Economic operator
- Main facility
- Subordinate facility

**Sustainability:**
See table below on sustainability data

**Ethics-related information**
- Bribery and corruption
- Land rights and community welfare
- Animal welfare

**Bribery and corruption**
- Recruitment practices
- Lack of social security

---

21 For more information, see the following: OECD, *Due Diligence Guidance for Responsible Supply Chains in the Garment and Footwear Sector* (2018); the ITC Standards Map; the UNEP report, *Sustainability and Circularity in the Textile Value Chain: Global Stocktaking* (2020); the SA8000® Standard by Social Accountability International (SAI); the Sustainable Apparel Coalition; the Global Reporting Initiative (GRI) global standards for sustainability reporting; the Global Fashion Agenda and Boston Consulting Group, *Pulse of the Fashion Industry Report* (2018); UNECE, *Accelerating action for a sustainable and circular garment and footwear industry: which role for transparency and traceability of value chains? Policy paper* (2020).
Certificates are typical examples of sustainability information. There are three types of common certificates all of which may be specified at the level of an organization (party), production facility or production unit and which may be obtained due to the result of an inspection.

1) **Product certificates** which are for a material (such as toxicological hazardous materials, transportation waste materials, chemicals) or products and product batches.

2) **Process certificates** which are for a production process, a chemical treatment, a finishing treatment, a crop protection treatment, a waste disposal process or a transport movement.

3) **Organization certificates** are for a specific entity

Another typical example is information about the sustainability characteristics of a product. For example, it could specify that a product contains no dyes or is organic.

In Figure 4, the key traceability entities are listed with some types of sustainability information that are often associated with them. Commonly, not all of the information about an entity will be exchanged in a message, but rather only that which is needed by the application in question.

The use of “information packages” about certificates and characteristics creates flexibility.

**Figure 4**

**Structured sustainability data**

As mentioned earlier, the data for basic traceability (the 5-Ws) and for sustainability are recorded separately and are retrieved in a two-step process. First, basic traceability data is collected and used to identify the value-chain party who has the needed sustainability information. This is followed by a bilateral information exchange where a request for data is made by the transparency information requestor to the value-chain party who then sends a reply.
The process of data exchange between the value-chain partner and the transparency information requestor can be automated by using technology such as Application Programming Interfaces (APIs). These can be programmed to recognize authorized “transparency information requestors” and can pass on the needed information to them. At the same time, this gives the information owner (value-chain partner) more control because they can, at any time, change the API to add or remove authorized information requestors and they can also track which information was retrieved and to whom it was given.

This process is described in more detail under the description for process 6, claim verification, in the generic BPA for Traceability and Transparency.

5. The generic business process model for traceability and transparency

5.1 An overview of the traceability and transparency process

The eight generic processes for traceability and transparency systems are shown in the use-case diagram in Figure 5. They are then explained in sections 1 through 8 below with a short description of each process, followed by an activity diagram (which shows the sequence of activities in the process) and its business process descriptions (which give more textual information for the activities). These basic processes are needed for traceability and transparency - regardless of the product value chain in question.

The first two processes are preparatory and need to be completed before a traceability and transparency system is put in place.

Processes 3 through 5 cover the value chain processes that create a product, starting with the start of traceability (process 3) and continuing through the various transformation processes that create a product (process 4) and including processes such as warehousing, transport and the end of traceability (process 5).

Process 6 is the retrieval of data created or collected in processes 2 through 5 for the purpose of verifying the claims established in process 1. This “claim verification” process must be done at the end of the traceability value chain, but it can also be implemented at the end of any value-chain process.

Processes 7 and 8 take place after the product is manufactured - process 7 being the provision of information to the consumer and, process 8, the provision of information for use in the post-consumer (recycle/reuse/burn) process.
5.2 Process 1 - Decide claims(s) and verification methods to be supported

As discussed in Section 3, the first process in a traceability and transparency system is deciding what claims are to be made and what data is needed to support/verify those claims, for example:

Table 3
Examples of claims

| Claim: | “This product has been made using leather that can be traced back to an animal welfare approved farm”. |
| Verification methods: | 1. Identification of the leather, based on stamps that record its journey from the animal, through to hide processing and leather manufacture, and on to product manufacture. |
| | 2. Use of 3rd party auditing body to verify validity of information |
| | 3. Manual data collection is permitted |

| Claim: | “This product has been made using leather that has been certified free of hazardous chemicals”. |
Verification Methods:

1. Identification of all facilities that have undertaken any part of the manufacture of the leather.
2. Confirmation of the tanning technology used at each facility and at any subcontractor.
3. Evidence of the consumables (chemicals) used for manufacture

The claim could be determined by the brand owner/retailer or a value-chain customer such as a trader or finishing facility. When choosing a claim, it is important to keep in mind that the methods for verifying that claim must be trustworthy, clear and achievable. A good understanding of the value chain is needed and if it is discovered that the claim cannot be demonstrated, then those gaps in the value chain which prevent this will need to be addressed before the claim can be made.

For additional information selecting and formulating claims, refer to Section 3 and the Guidelines for the UNECE Policy Recommendation for Enhancing Traceability and Transparency in the Garment and Footwear Sector.22

Credible data is required in order to demonstrate the veracity of a claim. As a result, the choice of verification criteria and methods is important.

Verification criteria consist of the standards and key performance indicators that traceable assets are supposed to meet and provide the rules which govern the traceability process. These criteria are the basis upon which verification processes are carried out by auditors or other verification agencies in order to prove that the traceable assets have complied with relevant claims.

Particularly important from the standpoint of implementation planning are the following:

- Well-defined verification criteria for traceability entry and exit points
- A governance structure that assigns responsibilities for the coordination, implementation and distribution of traceability tasks and their verification
- Procedures for organizing, recording, and reporting product conditions at entry/exit points as well as at other transformation, aggregation, and disaggregation event points where such data needs to be collected

Fraud and errors can falsify records or render them incomplete; thus, there is a need to verify data using verification methods, the most trusted being third-party audits and certifications. In addition, a mixture of tools can be used including self-assessment, peer reviews, second-party verifications, manual paper-based data trails, computerised database systems, product segregation or mass-balance accounting, adding and testing for physical identifiers and others.23 The level of verification and the methods used depend upon the capabilities of value-chain participants and the requirements defined by the parties establishing (or demanding) the traceability system as well as any related regulatory requirements.

The process of deciding upon claims and verification methods requires close cooperation with all relevant value-chain partners in order to ensure that the system has their support, and even more importantly, that they are capable of implementing it. A summary of the entire process can be found in the activity diagram for process 1 as shown in Figure 6.


How to Read Activity Diagrams: Activity diagrams are a graphic representation of a story that consists of sequential and parallel events. The easiest way to read them is to use your finger to trace the events from the black dot at the beginning down to the white dot with an X at the end, following the arrows and reading each box along the way. The totality of the texts in the boxes are most of the story and the arrows add information that, if written, would consist of many words like “after”, “before”, “if yes then”, “if not then”, “or”, etc. and these can be difficult to follow when used many times in a text. Beyond that, the only two things to remember are that diamonds ask questions that can change the direction of the arrows, and the dark bars always have multiple arrows on one side (either the “in” or “out”) and those multiple arrows represent parallel activities.

Figure 6
Process 1 - Decide claims and verification methods - activity diagram
<table>
<thead>
<tr>
<th>Name of process</th>
<th>Generic Traceability and Transparency Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of business process activity</td>
<td>1. Decide Claims and Verification Methods</td>
</tr>
<tr>
<td>Process participants</td>
<td>Traceability Requestor, Transformation Value-Chain Partner (VCP) and Validation Body</td>
</tr>
<tr>
<td>Input and criteria to begin the process</td>
<td>Traceability / Transparency System Requestor must have: 1) made initial decisions about which claims they would like to make, 2) should have already given some indications to their Value-Chain Partners, and 3) Should have decided who to use as a validation body(ies)</td>
</tr>
<tr>
<td>Parallel Processes</td>
<td>Depending upon communications from the Traceability / Transparency System Requestor, the VCPs may have already begun certification or similar ex ante activities as described in Activity Diagram 2 for this process. Process 8 (Provide sustainability claim/traceability information to Transformation Value Chain Partner for Recycling), Activity 8.2</td>
</tr>
<tr>
<td>Description of Activities</td>
<td>A step-by-step description of what happens in the process</td>
</tr>
<tr>
<td>1.1.1 Regulatory Requirements</td>
<td>Regulatory Requirements - Identify which can be supported or met with traceability</td>
</tr>
<tr>
<td></td>
<td>Once, with periodic reviews</td>
</tr>
<tr>
<td></td>
<td>Regulatory Requirements from Government Agencies which are communicated to management</td>
</tr>
<tr>
<td>1.1.2 Corporate Social Responsibility (CSR) Requirements</td>
<td>CSR Requirements - Identify which can be supported or met with traceability</td>
</tr>
<tr>
<td></td>
<td>Once, with periodic reviews</td>
</tr>
<tr>
<td></td>
<td>CSR priorities decided by management</td>
</tr>
<tr>
<td>1.1.3 Customer Demands</td>
<td>Customer Demands - Identify which can be supported or met with traceability</td>
</tr>
<tr>
<td></td>
<td>Once, with periodic reviews</td>
</tr>
<tr>
<td></td>
<td>Customer expectations communicated from marketing to management</td>
</tr>
<tr>
<td>1.2 Draft Claims, Make a draft list of claims for traceability</td>
<td>Draft Claims, make a draft list of claims for traceability which is adjusted as the acceptance by value chain partners and their capability to implement is evaluated</td>
</tr>
<tr>
<td></td>
<td>Once, with periodic reviews</td>
</tr>
<tr>
<td></td>
<td>From management to implementing department(s)</td>
</tr>
<tr>
<td>1.3 Verification Method(s), Identify verification methods to be used for each claim</td>
<td>Verification Method(s), Identify verification methods to be used for each claim</td>
</tr>
<tr>
<td>1.4.1 Can the verification methods be implemented by Traceability / Transparency System Requestor?</td>
<td>Can the verification methods be implemented by the Traceability / Transparency System Requestor?</td>
</tr>
<tr>
<td>1.4.2 Can the verification methods be implemented by Value-Chain Partner(s)?</td>
<td>Can the verification methods be implemented by the Value-Chain Partner(s)?</td>
</tr>
<tr>
<td>1.4.3 Are the verification methods accepted by the Validation Body?</td>
<td>Are the verification methods accepted by the Validation Body?</td>
</tr>
<tr>
<td>1.5 Final Claim List, Create final list of claims and verification methods for traceability</td>
<td>Final Claim List, Create final list of claims and verification methods for traceability</td>
</tr>
<tr>
<td>Output and criteria to exit the business process</td>
<td>Transparency Requestor has final list agreed with Value-Chain Partners and Validation body for claims and the methods to be used for traceability and for verification.</td>
</tr>
</tbody>
</table>
5.3 Process 2 - Implementation methods / systems to be used

Once the claims, verification criteria, and verification methods have been determined; the data collection systems and the verification methods need to be put in place before the system can become operational. This implementation has many aspects which range from obtaining third-party certifications, to putting in place systems for assigning unique IDs, to implementing data collection systems, to implementing transparency data sharing capability between business partners (e.g. EDI/API systems) and traceability data sharing through connections to a Traceability Data Repository.

As mentioned earlier, value-chain partners should be consulted during the process of deciding upon the verification criteria and methods. Once the criteria and methods are finalized they must be communicated to and agreed with these value-chain partners in order to ensure that all parties understand what is required and are able to implement in a timely manner. In addition, during this implementation process, constant communications are important in order to identify potential problems.

It is useful at this stage to provide examples or detailed descriptions of what data should be included, for example, data descriptions, uploads of certificates or photographic evidence, test reports, and identifiers.

It is also important, when considering data collection methods and data requirements, to evaluate existing documentation and processes at facilities in order to use data that is already available whenever possible. The process described in Section 6 should help implementors to do this.

The agreed rules for a traceability system are referred to as the “implementation methodology” or “implementation methods” in the rest of this text.

The above implementation process prior to going “live” with a traceability and transparency system is illustrated below in Figure 7. Business Process Analysis (BPA) can be a useful tool for planning an implementation as further explained in Section 6.
## Figure 7
### Process 2 - Implementation of verification methods/systems – activity diagram

This includes the expected Traceable Asset State at the beginning and at the end of each transformation process.

<table>
<thead>
<tr>
<th>ID Identifier</th>
<th>Traceability / Transparency System Requestor</th>
<th>Value-Chain Partner</th>
<th>Validation Body</th>
<th>Verification Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Send list of Verification Measures to be implemented to Suppliers (VCPs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.2</td>
<td>Review Changes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.2.1</td>
<td>Request changes to verification measures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.2.2.2</td>
<td>Do any measures cause problems?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>Request information for assigning unique IDs to Traceable Assets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3.1</td>
<td>Are there ex-ante measures, such as process or certification?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3.2</td>
<td>Implement Control Systems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3.3</td>
<td>Put in place procedures, IT tools, etc. for implementing process and ex-post controls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3.4</td>
<td>Do any of these controls require 3rd party certification?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3.5</td>
<td>Are all systems for process and ex-post verification in place?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4</td>
<td>Receive request for unique ID Info &amp; undertake needed internal processes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.4.1</td>
<td>Send info. for assigning unique IDs to Traceable Assets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>Receive list of verification measures to be implemented and plan them</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.5</td>
<td>Make Required Changes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.5.1</td>
<td>Make changes needed to pass ex-ante controls/certification</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.6</td>
<td>Send request for validation body to undertake ex-ante controls/certification</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.7</td>
<td>Undertake certification or other ex-ante control activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.8</td>
<td>Store Control Results</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.9</td>
<td>Store Control Results</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.10</td>
<td>Do any of the verification body of future needs for their survivors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.11</td>
<td>Contact Value Chain Partner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.12</td>
<td>Contact Value Chain Partner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.13</td>
<td>Receive requests and plan required process and ex-post controls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.14</td>
<td>Notify that any ex-ante controls are finished and any systems for process and ex-post controls are in place</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This includes that certificate or report results are registered and first communicated.
### Table 5
**Process 2 – Implementation of verification methods/systems – BPD**

<table>
<thead>
<tr>
<th>Name of process</th>
<th><strong>Generic Traceability Process</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of business process activity</td>
<td>2. Implement Verification Methods/Systems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process participants</th>
<th>Traceability / Transparency System Requestor, Value-Chain Partners (VCPs), ID Provider, Validation Body, Verification Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input and criteria to enter/begin the process</td>
<td>Traceability / Transparency System Requestor has agreed a final list of validation measures with Transformation Value-Chain Partners and Validation body(ies) for claims and the methods to be used for traceability and for verification.</td>
</tr>
</tbody>
</table>

**Parallel Processes**

Some part of this may take place in parallel, or even before Business Process 1, as some verification methods are agreed before others during the development of the final plan for claims and verification measures – and some VCPs may already have required certifications as the result of requests from other clients.

In process 7 (Provide claim/traceability information to customer) activities 7.1, 7.2, 7.3.1 and 7.3.2 are part of implementation of a traceability/transparency system and so would, for the most part, take place in parallel with this process activity. Process 8 (Provide sustainability claim/traceability information to Transformation Value Chain Partner for Recycling), Activity 8.3

<table>
<thead>
<tr>
<th>Description of Activities</th>
<th>Description</th>
<th>Periodicity</th>
<th>Required Documents + Who sends doc to Who</th>
<th>Required Other Information / Communication method + Who sends info to Who</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Send final list of Verification Measures to be implemented to Value-Chain Partners (VCP)</td>
<td>Traceability / Transparency System Requestor communicates applicable verification measures to be implemented by each Value-Chain Partner (VCP)</td>
<td>Once per product, with periodic reviews</td>
<td>List of verification measures to be implemented</td>
<td>PDF letter/email to from Requestor of Traceability to VCP with description of verification measures and contact information when third party interventions are required (such as certification)</td>
</tr>
<tr>
<td>2.2 Receive list of verification measures to be implemented and plan them</td>
<td>VCP receives list of verification measures to be implemented from Traceability / Transparency System Requestor and plans actions to be taken</td>
<td>Once per product, with periodic reviews</td>
<td>List of verification measures to be implemented</td>
<td>See activity 2.1 above</td>
</tr>
<tr>
<td>2.2.1 Do any verification measures cause problems?</td>
<td>Do any verification measures cause problems?</td>
<td>____</td>
<td>List of verification measures to be implemented</td>
<td>____</td>
</tr>
<tr>
<td>Process Step</td>
<td>Description</td>
<td>Frequency</td>
<td>Additional Details</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
<td>-----------</td>
<td>-------------------</td>
<td></td>
</tr>
<tr>
<td>2.2.2 Request changes to verification measures</td>
<td>Value-Chain Partner requests that Traceability / Transparency System Requestor change the verification measures</td>
<td>Once per product, with periodic reviews</td>
<td>Request for change to verification measures</td>
<td></td>
</tr>
<tr>
<td>2.2.3 Review request for change</td>
<td>Traceability / Transparency System Requestor reviews the request from the Value-Chain Partner for change and, if needed, modifies the verification measures</td>
<td>Once per product, with periodic reviews</td>
<td>Request for change to verification measures</td>
<td></td>
</tr>
<tr>
<td>2.3 Request information for assigning unique IDs to Traceable Assets</td>
<td>If they do not already have this, the VCP requests the information needed for assigning unique IDs to the traceable assets from the ID provider</td>
<td>Once</td>
<td>Email or PDF letter to ID provider unless an on-line form is used for the request</td>
<td></td>
</tr>
<tr>
<td>2.4 Receive Request for Unique ID Info &amp; undertake needed internal processes</td>
<td>ID provider receives request from VCP and takes steps needed in their system to allocate an identifier</td>
<td>Once</td>
<td>See activity 2.3 above</td>
<td></td>
</tr>
<tr>
<td>2.5 Send info. for assigning unique IDs to Traceable Assets</td>
<td>ID provider sends needed information for assigning unique IDs to VCP</td>
<td>Once</td>
<td>Email or PDF letter and, in some cases, perhaps, files with ID information or APIs from the ID provider to the VCP</td>
<td></td>
</tr>
<tr>
<td>2.6 Receive info. for assigning unique IDs and implement in systems</td>
<td>VCP receives needed information from ID provider for assigning unique IDs and implements in their systems</td>
<td>Once</td>
<td>See above in Step 2.5</td>
<td></td>
</tr>
<tr>
<td>2.7 Are there ex-ante measures such as process certification?</td>
<td>Are there ex-ante measures such as process certification that the VCP should implement?</td>
<td>Periodically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.1 If yes, there are ex ante controls: Send request to validation body for ex-ante controls/certification</td>
<td>If certification, or other ex-ante controls, of processes/systems are needed, the VCP sends a request to the relevant validation body</td>
<td>Periodically, on an annual or multi-annual basis, depending on the rules for certification renewal</td>
<td>Email or PDF letter and, in some cases, perhaps, files with additional information as requested by the Validation Body</td>
<td></td>
</tr>
<tr>
<td>2.7.1.1 Receive request and plan required ex-ante controls / certifications</td>
<td>Validation body receives and processes request for certification and/or other</td>
<td>See 2.7.1 above</td>
<td>Email or PDF letter exchanges between the Validation Body and the VCP in order to schedule controls</td>
<td></td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
<td>Notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>-------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.1.2 Undertake ex-ante control</td>
<td>Validation body implements activities needed for certification and/or other ex-ante controls of the value-chain partner</td>
<td>See 2.7.1 above</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In some cases, the Validation Body may request that information be submitted on-line</td>
<td>Email or PDF letters letter exchanges between the Validation Body and the VCP concerning information needed for the control activity. This may include information in excel, pdf or other file formats</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.1.3 Store Control results</td>
<td>Validation body stores results of control for retrieval later if needed and communicates the results to the value-chain partner</td>
<td>See 2.7.1 above</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Depending upon the validation body there may be a standard report that it issues to the VCP after the control</td>
<td>If there is no standard report, then an email or PDF letter is sent with the results from the Validation Body to the VCP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.1.4 Did TVC partner pass the ex-ante control?</td>
<td>Did TVC partner pass the ex-ante control?</td>
<td>_____</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.7.1.5 Make Any Required Changes</td>
<td>If the VCP did not pass the ex-ante control, then they need to make the changes necessary to do so and then send request for a repetition of the ex-ante control (2.7.1)</td>
<td>Only needed if the ex-ante control is not passed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Actions are based upon the communications received in activity 7.1.3 above</td>
<td>Actions are based upon the communications received in activity 7.1.3 above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.8 Implement Control System</td>
<td>Value-chain partner puts in place procedures, IT tools, etc. for implementing process and ex-post controls</td>
<td>Once with periodic updates</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Activity is based on information sent and received during Activities 2.1 and 2.2 above</td>
<td>Activity is based on information sent and received during Activities 2.1 and 2.2 above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.9 Do any of these controls require 3rd party verification?</td>
<td>Do any of the controls put in place by the VCP in 2.8 above require 3rd party verification?</td>
<td>_____</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.9.1 Inform verification body of future needs for their services</td>
<td>If the process and ex-post controls require the intervention of a third-party verification service, then the VCP notifies them of the eventual need for their services</td>
<td>Depends upon the controls to be done and the required frequency</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Some verification bodies may have on-line systems for VCPs to use in requesting their services</td>
<td>If there is no online request system, then via e-mail and pdf documents between the VCP and the Verification Body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Description</td>
<td>Verification Body plans required process and/or ex-post controls</td>
<td>Depends upon the controls to be done and the required frequency</td>
<td>Some verification bodies may have on-line systems for VCPs to use in scheduling their services</td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td>---------------------------------------------------------------</td>
<td>---------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2.9.2</td>
<td>Receive request and plan required process and ex-post controls</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.10</td>
<td>Are all systems for process and ex-post verification in place?</td>
<td>Are all systems for process and ex-post verification in place?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.11.1</td>
<td>If yes, all systems are in place - Notify that any ex-ante controls are finished and any systems for process and ex-post controls are in place</td>
<td>VCP notifies the Traceability / Transparency System Requestor that any ex-ante controls have been successfully completed and that any systems for process and ex-post controls are in place</td>
<td>Depends upon the controls to be done and the required frequency</td>
<td>The VCP will send any proofs required by the Traceability / Transparency System Requestor such as certificates or inspection reports</td>
</tr>
<tr>
<td>2.11.2</td>
<td>Receive Notification</td>
<td>The Traceability / Transparency System Requestor receives and registers the notification from the value-chain partner</td>
<td>As often as Activity 8 is done</td>
<td></td>
</tr>
<tr>
<td>Output and criteria to exit the business process</td>
<td>All ex-ante controls have been successfully completed; systems for process and ex-post controls are in place and the Traceability / Transparency System Requestor has received this information</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.4 Process 3 – Process asset at traceability entry point

At the traceability entry point, the traceable asset is assigned a unique identifier (ID) in accordance with the implementation methods agreed in processes 1 and 2 (see above). This unique ID is entered into a computerised system together with the other 5-W information described in the section on traceability data above - or, at a minimum, is manually recorded in a paper record. There are minimum requirements that a traceable asset should meet at the traceability entry point. What those minimum requirements are will depend upon the product and the claim being supported and should be documented in the implementation methodology.

Traceability does not always begin at the very first step in a value chain, but wherever it starts, this is considered to be the traceability entry point, and this determines whether or not an existing identifier can be used for traceability. For example, if livestock has already been given an identifier at the farm level, and traceability begins at the farm, this identifier can be preserved through the hide processing and manufacture of the leather, with additional identifiers being added for onward transformation value-chain partners (TVCP). Alternatively, if the traceability entry point starts at the first tannery stage, then a new identifier should be applied at that point and this could be an identifier defined by the customer, a tannery identifier or any other agreed upon ID.

At the point of transfer to another value-chain partner or process, all transfer information is recorded, i.e. the 5-Ws including the date and time of transfer, quantities and onward destination.

As a traceable asset (such as a hide) moves through the value chain, the information recorded at the traceability entry point will be linked to further information that is recorded at each transformation stage, and, if agreed in the implementation methodology, also in transport and storage phases. This linkage is created through the use of unique IDs for inputs, outputs and logistical units which are always linked to the IDs from the previous process. How this works is shown in Figure 8.

Figure 8
The Use of Unique IDs to Establish Traceability

Specific illustrations of traceability entry point processing can be found in the textile and leather value chain examples later in this document.

---

24 Logistical Units are traceable assets packaged together for transport or storage purposes – for example in a box, on a pallet or in a container.
Figure 9
Process 3 – Traceability entry point processing – activity diagram
### Table 6
**Process 3 – Traceability entry point processing – BPD**

<table>
<thead>
<tr>
<th>Name of process</th>
<th>Generic Traceability Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of business process activity</td>
<td>3. Traceability Entry Point Processing - Generic Traceability Process</td>
</tr>
<tr>
<td>Process participants</td>
<td>Value-Chain Partner (VCP), Verification Body (Which could be an internal accounting or inspection division)</td>
</tr>
<tr>
<td>Input and criteria to enter/begin the process</td>
<td>All ex-ante controls have been successfully completed; systems for process and ex-post controls are in place and the Traceability Requestor has received this information and production has started</td>
</tr>
<tr>
<td>Parallel Processes</td>
<td>None, although this process may be undertaken multiple times in parallel with itself as multiple products/batches move through production</td>
</tr>
</tbody>
</table>

#### Description of Activities

**A step-by-step description of what happens in the process.**

- **3.1 Do traceable assets already have unique IDs?**
  - **3.1.1 If the traceable assets already have IDs, register their arrival**
    - If the traceable assets do have unique IDs, register the IDS and the arrival at the VCP. If needed, label the traceable assets.
    - Entry of Traceable Asset ID into computer system and its arrival at entry point
    - Information about IDs

- **3.1.2 If they do not have IDS, assign IDs to Traceable Assets**
  - If they do not have them, give traceable assets unique IDs based on decisions and agreements made in Activity Diagram 2. Label the asset with this unique ID, if needed, and register the ID and arrival at the VCP partner. In some cases this may be done after steps 3.2 and 3.3 instead of before.
  - Entry of Traceable Asset ID into computer system and its arrival at entry point
  - Information about how to assign IDs

**Description**

Needs to mention all of the participants to this step in the process

**Periodicity**

Daily, monthly, every 8 weeks, yearly, etc.

**Required Documents**

+ Who sends doc to Who
  + Includes entry of data into computer systems

**Required Other Information / Communication method**

+ Who sends info to Who
<table>
<thead>
<tr>
<th>3.2 Does Verification Body need to Verify State of Traceable Asset?</th>
<th>Does Verification Body need to Verify State of Traceable Asset at the Traceability Entry Point?</th>
<th>According to the agreement between the VCP and the Verification Body</th>
<th>To arrange for inspections: communications via email and pdf documents between the VCP and the Verification Body.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2.1 If yes, Verification body verifies &quot;state&quot; of traceable asset</td>
<td>The Verification body verifies the state of the asset against requirements - Only done if traceable asset needs to be inspected by a 3rd party at the Traceability Entry Point</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>3.2.2 If no, then the TVC partner verifies the state of the traceable asset</td>
<td>VCP verifies the state of asset against the requirements provided at the end of Business Process Activity 1. Only done if 3rd party verification is not required (see 2.2 below)</td>
<td>For every traceable asset</td>
<td>Instructions as to what is an acceptable state for the Traceable Asset from either VCP management or Traceability / Transparency System Requestor to VCP operations employee. Could be on-line or on paper</td>
</tr>
<tr>
<td>3.3 Does Traceable Asset meet requirements?</td>
<td>If the traceable asset meets the requirements, register the status of the traceable asset, at the moment it enters the traceability entry point</td>
<td>For every traceable asset</td>
<td>---</td>
</tr>
<tr>
<td>3.3.1 If yes, Register status of Traceable Asset</td>
<td>---</td>
<td>Status is entered into computer system or Excel spreadsheet</td>
<td>---</td>
</tr>
<tr>
<td>3.4 Transfer Traceable Asset</td>
<td>Transfer Traceable Asset into either a transformation process (see business process activity 4) or a product guardian process (see business activity process 5)</td>
<td>Done for all traceable assets that meet entry point conditions</td>
<td>Date and time may be entered by VCP into a computer system</td>
</tr>
<tr>
<td>3.3.2 If no – Can the Asset status be fixed?</td>
<td>If the traceable asset does not meet requirements, can remedial action be taken so that the traceable asset meets requirements?</td>
<td>---</td>
<td>If not entered into a computer system, date and time may be entered into an accounting ledger for operations</td>
</tr>
<tr>
<td>3.3.2.1 If traceable asset can be fixed, take remedial action</td>
<td>Take Remedial Action if traceable asset does not meet requirements and this is possible. Then, send “repaired” Asset back to either activity 3.2.1 or</td>
<td>Whenever a traceable asset does not meet the</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>---</td>
</tr>
<tr>
<td>3.3.2.2 If traceable asset cannot be fixed, register disposal status of traceable asset</td>
<td>3.2.2 as applicable (“repair” might be just having missing info made available)</td>
<td>requirements, and this can be fixed</td>
<td>Corrective action that is taken is recorded, communicated to relevant parties (i.e. provider of traceable asset, management, traceability requestor, etc.) by VCP and traceable asset goes back to either activity 3.2.1 or 3.2.2.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Register final planned disposal of traceable asset that cannot be “repaired” in order to meet requirements</td>
<td>Whenever a traceable asset does not meet the requirements, and this cannot be fixed</td>
<td>VCP registers in computer system the final disposal of product.</td>
<td>If no computer system is used, this information is included in other reports by the VCP</td>
</tr>
<tr>
<td>3.5 Dispose of traceable asset in line with the status registered in 3.3.2.2</td>
<td>4 Dispose of traceable asset in line with the status registered in 3.3.2.2</td>
<td>“ “</td>
<td>“ “</td>
</tr>
</tbody>
</table>

**Output and criteria to exit the business process**
The traceable asset has been found to meet the traceability entry point requirements and has been assigned a unique ID

**Circular economy related observations**
The key question here is what happens to traceable assets that cannot be made to meet requirements and need to be disposed of.
5.5  Process 4 - Implement traceability at transformation processing points

As the traceable asset now moves through different transformation processes in its journey toward being a final consumer good, the 5-Ws (also called “event data”) are recorded at each stage in the process in order to maintain traceability. For each process, the inputs should have IDs that are registered and, the transformed output should have a new ID (which is linked to the input IDs). In the case for processes where there is one input and one output, the assignment of a new ID is optional and will depend upon the implementation/verification methods that are agreed.

These linked records show the integrity of the chain of custody, are used to identify where further verification data can be found and can also be instrumental in problem solving should the need arise. This 5-W traceability data is recorded by all value-chain partners in a shared data repository.

Additional information for supporting claims is linked to the relevant IDs is also recorded in a data repository where access to the data is controlled by the value-chain partner responsible for the process in question. Depending upon the product and the claim, this additional data, beyond the 5-Ws, should include additional details about inputs such as chemicals or finishing films, which result in a physical change to the material as well as information such as the results from certifications and inspections.

Depending upon the agreed implementation methods (process 2), verification of claim(s) may be made at the end of any transformation process.

Specific illustrations of transformation processes can be found in the textile and leather value chain examples later in this document.
Figure 10A
Process 4 – 1 of 2 Traceability processing at transformation points – activity diagram
Note: this diagram was split into two parts, otherwise the text would have been too small to read

4.1 of 2 Traceability Processing at Transformation Points - Generic Traceability and Transparency Process

<table>
<thead>
<tr>
<th>Transformation Value-Chain (TVC) Partner</th>
<th>Verification Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1.1 Receive Traceable Asset Input(s)</td>
<td></td>
</tr>
<tr>
<td>Receive inputs from previous process(es) in the form of Traceable Assets</td>
<td></td>
</tr>
<tr>
<td>4.1.2 Go to Process 3 - Traceability Entry Point Processing</td>
<td></td>
</tr>
<tr>
<td>4.1 Is this the entry point for the traceability process?</td>
<td></td>
</tr>
<tr>
<td>4.2 Record ID(s) of Traceable-Asset Input(s)</td>
<td></td>
</tr>
<tr>
<td>Record the IDs of the Traceable Assets which are inputs to this process</td>
<td></td>
</tr>
<tr>
<td>4.3 Transformation Process</td>
<td></td>
</tr>
<tr>
<td>Transform the input Traceable Asset(s) according to the process in question</td>
<td></td>
</tr>
<tr>
<td>4.4 Assign ID of Input to Output</td>
<td></td>
</tr>
<tr>
<td>Assign/attach the same ID to the output traceable asset as had the input asset</td>
<td></td>
</tr>
<tr>
<td>4.5 TVC partner want to keep Input ID as Output ID?</td>
<td></td>
</tr>
<tr>
<td>4.5.1 Assign new ID to Output</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>4.6 Link Asset ID to TVC Partner ID &amp; Process info.</td>
<td></td>
</tr>
<tr>
<td>Link Traceable Asset ID to that of Value-Chain Partner plus required process &amp; other information</td>
<td></td>
</tr>
<tr>
<td>4.7 Decision activity 4.7</td>
<td></td>
</tr>
<tr>
<td>4.8 Link Asset ID to TVC Partner ID &amp; Process info.</td>
<td></td>
</tr>
<tr>
<td>Go to Process 4, part 2, Decision activity 4.9 (on the “Yes” branch to a decision asking if a non-conformant traceable asset can be repaired / reworked)</td>
<td></td>
</tr>
</tbody>
</table>

This can be any verification body including internal accounting or inspection divisions - only active in part 2 of process
Figure 10B
Process 4 – 2 of 2 Traceability processing at transformation points – activity diagram

4.2 of 2 Traceability Processing at Transformation Points - Generic Traceability and Transparency Process

Transformation Value-Chain (TVC) Partner

- Come from Process 4, part 1, activity 4.6 “Link Asset ID to TVC Partner ID & Process info”
  
  4.7 Does Verification body need to Verify State of Output Traceable Asset?
  
  - Yes
    
    4.7.2 Verify “state” of output traceable asset
    
    Verify state of asset resulting from transformation against requirements
  
  - No
    
    4.6 Does Traceable Asset meet requirements?
    
    - Yes
      
      4.8.1 Register Status of Traceable Asset
      
      Register traceable asset as meeting requirements
    
    - No
      
      4.9 Can Traceable Asset be repaired / reworked?
      
      No
      
      4.9.1 Dispose of Asset and Fix Process
      
      Dispose of defective traceable asset and fix causes in process
      
      4.9.2 Register status of defective traceable asset
      
      Register final status (disposal) of traceable asset
      
      4.12 Does Traceable Asset need to be transported to new location?
      
      No
      
      4.10.1 Register Status of Traceable Asset at Exit
      
      Register information required upon exit of traceability asset
      
      Yes
      
      4.11 Go to Process 5 (AD and BPO 6) for Policy Claim Verification
      
      4.13 Transfer Logistic Units to Transporter
      
      Give Traceable Assets to transporter for transfer to next process / Value-Chain Partner and register transport actudate/agent
      
      4.14 Go to AD 5 for transport chain of custody (traceability) processing

Verification Body

- This can be any verification body including internal accounting or inspection divisions

  4.7.1 Verify “state” of output asset
  
  Verify against requirements the state of the output traceable asset resulting from transformation
  
  Only done if traceable asset needs to be inspected at end of transformation process
<table>
<thead>
<tr>
<th>Name of process</th>
<th>Generic Traceability Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of business process activity</td>
<td>4. Processing at Transformation Points - Generic Traceability Process</td>
</tr>
<tr>
<td>Process participants</td>
<td>Transformation Value-Chain Partner (TVCP) and Verification Body (This can be any verification body including internal accounting or inspection divisions)</td>
</tr>
<tr>
<td>Input and criteria to enter/begin the process</td>
<td>All input traceable assets have been given unique IDs</td>
</tr>
<tr>
<td>Parallel Processes</td>
<td>None</td>
</tr>
<tr>
<td>Description of Activities</td>
<td>A step-by-step description of what happens in the process.</td>
</tr>
<tr>
<td>Description</td>
<td>Needs to mention all of the participants to this step in the process</td>
</tr>
<tr>
<td>Periodicity</td>
<td>Daily, monthly, every 8 weeks, yearly, etc.</td>
</tr>
<tr>
<td>Required Documents</td>
<td>+ Who sends them to Who Includes entry of data into computer systems</td>
</tr>
<tr>
<td>Required Other Information / Communication method</td>
<td>+ Who sends info to Who</td>
</tr>
<tr>
<td>4.1 Is this the Traceability entry point?</td>
<td>Is this the entry point for the Traceability process, i.e. the first process step at which assets begin to be traced?</td>
</tr>
<tr>
<td></td>
<td>Once for traceable asset input</td>
</tr>
<tr>
<td>4.1.1 If yes, Go to traceability entry point process</td>
<td>As applicable</td>
</tr>
<tr>
<td>4.1.2 If not, Receive Traceable Asset Input(s)</td>
<td>Receive inputs coming from previous process(es) in the form of traceable assets with unique IDs. The previous process may have been in another Value Chain Partner or within the same TVCP</td>
</tr>
<tr>
<td></td>
<td>Depends on process, but most likely more often than weekly and could even be hourly</td>
</tr>
<tr>
<td></td>
<td>There are various options, could be a transport document such as CMR or Bill of Lading, or a commercial document such as an invoice or purchase order. These are sent from the previous TVCP partner or from the Traceability entry point process documented in process 3</td>
</tr>
<tr>
<td></td>
<td>Some documents and/or some information about shipping times, arrivals, etc may be communicated via email and, optionally, pdfs</td>
</tr>
<tr>
<td>4.2 Record ID(s) of Traceable-Asset Input(s)</td>
<td>Record the IDs of the Traceable Assets which are inputs to this process</td>
</tr>
<tr>
<td></td>
<td>Depends on process, but most likely more often than daily</td>
</tr>
<tr>
<td></td>
<td>Most likely that this information is in the CMR or Bill of Lading or</td>
</tr>
<tr>
<td></td>
<td>If the information on IDs is missing or appears incorrect</td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>4.3 Transformation Process</td>
<td>Transform the input traceable asset(s) according to the process in question</td>
</tr>
<tr>
<td>4.4 Was there more than one traceable asset as input?</td>
<td>&quot;&quot;&quot;&quot;</td>
</tr>
<tr>
<td>4.5 If there was only one traceable asset input – Does the TVC partner want to keep the input ID or assign a new ID?</td>
<td>Best practice is to assign a new ID after each transformation process. However, if there are other ways to identify that the traceable asset has been transformed (plus when and how), and it has been agreed with VCP partners, then the traceable asset which is an output can have the same ID as the input.</td>
</tr>
<tr>
<td>4.4.1 If there is more than one input OR there was only one but the TVC partner wants to assign a new ID – Assign one or more new IDs to the output(s) from the transformation process</td>
<td>Assign new, unique ID to the output, register it, and link it to the input(s)' ID(s)</td>
</tr>
<tr>
<td>4.5.1 If there was only one input and the TVC partner does not want to assign a new ID - Assign ID of Input to Output</td>
<td>Assign/attach the same ID to the output traceable asset as had the input asset - If there was only one input and the TVC partner does not want to assign a new ID</td>
</tr>
<tr>
<td>4.6 Link Asset ID to TVC Partner ID &amp; Process info.</td>
<td>Link Traceable Asset ID to ID of TVCP plus ID of process &amp; other information, such as location inside of TVCP (i.e. the 5-Ws of Who, What, Why, Where, When)</td>
</tr>
<tr>
<td>Section</td>
<td>Question</td>
</tr>
<tr>
<td>---------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4.7</td>
<td>Does Verification body need to verify the state of the output traceable asset?</td>
</tr>
<tr>
<td>4.7.1</td>
<td>If yes, then Verification body verifies &quot;state&quot; of output asset</td>
</tr>
<tr>
<td>4.7.2</td>
<td>If no, then TVC partner verifies &quot;state&quot; of output traceable asset</td>
</tr>
<tr>
<td>4.8</td>
<td>Do traceable asset(s) meet the requirements?</td>
</tr>
<tr>
<td>4.8.1</td>
<td>If traceable asset meets requirements - Register this Status</td>
</tr>
<tr>
<td>4.9</td>
<td>If traceable asset(s) does not meet requirements, can it be repaired/reworked?</td>
</tr>
<tr>
<td>4.9.1</td>
<td>If no, i.e. the traceable asset(s) cannot be repaired / reworked to meet requirements – Dispose of traceable asset(s) and Take Action to Fix Process</td>
</tr>
<tr>
<td>4.9.2</td>
<td>Register Status of Traceable Asset(s) that does not meet requirement</td>
</tr>
<tr>
<td>4.10 Is this the Traceability Exit Point?</td>
<td>Is this the last process where the traceable asset will be traced?</td>
</tr>
<tr>
<td>4.10.1 If yes, this is the Traceability Exit Point – Register Exit-Point Information</td>
<td>Register information required upon exit of asset from the traceability system</td>
</tr>
<tr>
<td>4.11 Go to Process 6 (AD and BPD 6) for exit point verification</td>
<td>IF this is the Traceability Exit Point then go to Activity Diagram and Business Process Description 6 for final verification that traceable asset meets requirements</td>
</tr>
<tr>
<td>4.12 Does Traceable Asset need to be transported to a new location?</td>
<td>--------</td>
</tr>
<tr>
<td>4.12.1 If not, then next process is at the same location - Transfer Traceable Asset to next process</td>
<td>Transfer Traceable Asset to Next Process at same location</td>
</tr>
<tr>
<td>4.12.2.1 If yes, the traceable asset needs to be transported: Package Asset(s) into Logistic Unit</td>
<td>Package asset (possibly with other assets) into a logistic unit(s) (package / pallet / container) for transport</td>
</tr>
<tr>
<td>4.12.2.2 Assign Unique ID to Logistics Unit</td>
<td>Assign unique ID to logistics unit and register the unique ids of the traceable assets contained in the logistics unit</td>
</tr>
<tr>
<td>4.13 Transfer Logistics Units to Transporter</td>
<td>Give Traceable Assets to transporter for transfer to next process / Value-Chain Partner and register transporter</td>
</tr>
<tr>
<td>4.14 Go to AD and BPD 5 for transport traceability (chain of custody) processing</td>
<td>Go to AD and BPD 5 for transport traceability (chain of custody) processing</td>
</tr>
<tr>
<td><strong>Output and criteria to exit the business process</strong></td>
<td>Output from transformation process has been given a unique id and meets the requirements for that output. If the traceable asset needs to be transported, it has been packaged either alone or with other traceable assets into a logistical unit. If there is a logistical unit containing more than one traceable asset it has a unique ID and the IDs of all of the traceable assets that it contains have been registered and linked to the logistical unit ID.</td>
</tr>
<tr>
<td><strong>Circular economy related observations</strong></td>
<td>These are the processes where there are most likely to be “industrial waste” that can be recycled, such as textile scraps or defective batches. In addition, there is a question of how to minimize the economic and environmental impact from the disposal of defective assets.</td>
</tr>
</tbody>
</table>
5.6 Process 5 – Implement traceability with a Product Guardian Value-Chain Partner

Before a traceable asset is transferred to another party, whether it be a transformation value-chain partner or a product guardian value-chain partner (transporter or warehouse), the traceable asset is usually packaged either alone or with other traceable assets into a “logistical unit” for transport or storage. This logistical unit will have a unique ID which is recorded and linked to the ID(s) of all the traceable assets contained within that logistical unit.

The data recorded for logistical units includes origin location, destination location, date/time of collection and/or of delivery. Existing documentation that could provide all or part of this data includes consignment notes, collection confirmations, bills of lading, delivery notes, invoices – either manual or electronic.

Specific illustrations of product guardian processes can be found in the textile and leather value chain examples later in this document.
Figure 11
Process 5 – Implement traceability with a product guardian value-chain partner – activity diagram
Table 8
Process 5 – Implement traceability with a product guardian value-chain partner – BPD

<table>
<thead>
<tr>
<th>Name of process</th>
<th>Generic Traceability Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of business process</td>
<td>5. Traceability with a Product Guardian Value-Chain Partner (PGVCP)</td>
</tr>
<tr>
<td>activity</td>
<td>– Starting from Transport which could be to a Transformation Value-Chain Partner (TVCP) or a Product Guardian Value-Chain Partner (PGVCP) (Warehouse)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Process participants</th>
<th>Sending Transformation or Product Guardian Value-Chain Partner (a TVCP or PGVCP), Transport Product Guardian Value-Chain Partner (a PGVCP), Receiving Value-Chain Partner (a TVCP or PGVCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input and criteria to enter/begin the process</td>
<td>The traceable asset has been packaged either alone or with other traceable assets into a logistical unit for transport. The logistical unit has a unique ID and the IDs of all of the traceable assets that it contains have been registered and linked to the logistical unit ID.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Parallel Processes</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of Activities</td>
<td>A step-by-step description of what happens in the process.</td>
</tr>
<tr>
<td>Description</td>
<td>Needs to mention all of the participants to this step in the process</td>
</tr>
<tr>
<td>Periodicity</td>
<td>Daily, monthly, every 8 weeks, yearly, etc.</td>
</tr>
<tr>
<td>Required Documents</td>
<td>+ Who sends them to Who Includes entry of data into computer systems</td>
</tr>
<tr>
<td>Required Other Information / Communication method</td>
<td>+ Who sends info to Who Examples of emails, pdfs, etc need to be collected</td>
</tr>
</tbody>
</table>

5.1 Is destination a warehouse?

<table>
<thead>
<tr>
<th>5.1.1.1 IF destination of assets is a Warehouse, then Request Warehouse Services</th>
<th>IF destination of assets is a Warehouse – The sending Value-Chain Partner Requests Warehouse Services. Request normally sent by a TVCP to a PGVCP partner (warehouse), but it could also be from one warehouse to another (so PGVCP to PGVCP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Periodicity</td>
<td>Depends on value chain and process, could be anything from yearly to daily</td>
</tr>
<tr>
<td>Required Documents</td>
<td>Could be on-line request system for warehouse services and may be entered into, or generated by, an ERP system.</td>
</tr>
<tr>
<td>Required Other Information / Communication method</td>
<td>Also, could be a process done via emails and pdfs exchanged between the Sending Value-Chain Partner and the Warehouse Value-Chain Partner</td>
</tr>
</tbody>
</table>

5.1.2 Receive Request for Warehouse Services – by a warehouse PGVCP

<table>
<thead>
<tr>
<th>Request for warehouse services is received by warehouse</th>
<th>“ ”</th>
</tr>
</thead>
<tbody>
<tr>
<td>“ ”</td>
<td>“ ”</td>
</tr>
<tr>
<td>“ ”</td>
<td>“ ”</td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>5.1.1.3</td>
<td>Send confirmation of warehouse services</td>
</tr>
<tr>
<td>5.1.1.4</td>
<td>Receive warehouse service confirmation</td>
</tr>
<tr>
<td>5.1.2.1</td>
<td>IF recipient of assets is NOT a warehouse – Send notification that goods are being sent/ will arrive</td>
</tr>
<tr>
<td>5.1.2.2</td>
<td>Receive Notification that assets are being sent received by intended recipient</td>
</tr>
<tr>
<td>5.2.1</td>
<td>Request for Transport Service</td>
</tr>
<tr>
<td>5.2.2</td>
<td>Request for transport service received by Transporter (PGVCP)</td>
</tr>
<tr>
<td>5.2.3</td>
<td>Send confirmation of transport services</td>
</tr>
<tr>
<td>5.2.4</td>
<td>Receive transport service confirmation</td>
</tr>
<tr>
<td>5.3.1</td>
<td>Prepare Traceable Asset Information – done by Sending Value-Chain Partner</td>
</tr>
<tr>
<td>5.3.2</td>
<td>Prepare for taking transporting goods – done by transporter PGVCP</td>
</tr>
</tbody>
</table>

Could be an e-mail and pdfs

Could be an exchange of emails and pdfs

As often as shipments are sent

Could include exchanges of emails and pdfs

May have an automated scheduling system for drivers

Could also be an email and SMS process or that
<table>
<thead>
<tr>
<th>5.3.3 Prepare for taking possession – receipt – done by receiving TVCP or PGVCP (after transport)</th>
<th>Make any needed preparations (reserving warehouse space, scheduling reception, transformation processes etc.)</th>
<th>“*”</th>
<th>May be done via entering information in a corporate ERP system.</th>
<th>Could also be an email and pdfs process</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.4 Physically Transfer Traceable Assets from Sending Value-Chain Partner to Transport PGVCP</td>
<td>Physically give traceable assets and accompanying info to the transport PGVC partner</td>
<td>“*”</td>
<td>Bill of Lading and, for trucking, CMR. These may be in electronic or paper formats. An invoice may also be required</td>
<td>Could include exchanges of emails and pdfs</td>
</tr>
<tr>
<td>5.5 Take Possession of the Goods for Transport – done by receiving transport PGVCP</td>
<td>Take possession of the traceable assets and accompanying information for purposes of transport</td>
<td>“*”</td>
<td>“*”</td>
<td>“*”</td>
</tr>
<tr>
<td>5.6.1 Register Transfer of Traceable Asset – Done by Sending TVCP or PGVCP</td>
<td>Sending value-chain partner registers transfer of traceable assets including date/time/place plus IDs of traceable assets, and/or logistic unit(s), and ID of PGVC transport partner and any other info needed for traceability purposes</td>
<td>“*”</td>
<td>Most likely done by entry into a computer system.</td>
<td>-------</td>
</tr>
<tr>
<td>5.6.2 Register Receipt/Possession of Traceable Asset – Done by Receiving Transport PGVCP</td>
<td>Register ID of Value-Chain Partner that ceded goods and info about reception of the assets and the assets themselves</td>
<td>“*”</td>
<td>Most likely done by entry into a computer system – could be done on a mobile device. Could be taken from or covered only by Bill of lading or CMR which may be paper documents</td>
<td>-------</td>
</tr>
<tr>
<td>5.7 Deliver Traceable Assets</td>
<td>Transport PGVC delivers traceable assets to Receiving value-chain partner (TVCP or PGVCP) and registers info about the delivery</td>
<td>“*”</td>
<td>Most likely done in a computer system but delivery date, time and receiving person could also be handwritten on a CMR copy or Bill of Lading</td>
<td>-------</td>
</tr>
<tr>
<td>5.8 Is the next value-chain partner a warehouse?</td>
<td>Is the next value-chain partner a warehouse?</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>5.8.1 IF Next Value Chain Partner is a Warehouse – Store Traceable Assets</td>
<td>If the next VCP is a warehouse, put traceable assets in storage, record the IDs of sending value-chain partner and the transporter, and record the location in the warehouse and any other useful information for management (for example any requirements with regard to temperature or humidity, etc.)</td>
<td>As often as shipments are received</td>
<td>Most likely entered into inventory management system at warehouse</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>5.9 Is this the Traceability Exit Point?</td>
<td>Is this the last activity where traceability information is registered for the traceable asset?</td>
<td>------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>5.9.1.1 IF yes, this is the Traceability Exit Point – Register Exit-Point Information</td>
<td>Register information required upon exit of asset from the traceability system</td>
<td>Depends upon the value chain in question</td>
<td>Should be entered in a computer system</td>
<td></td>
</tr>
<tr>
<td>5.9.1.2 Go to Process 6 (AD and BPD 6) for exit point verification</td>
<td>IF this is the Traceability Exit Point then go to Activity Diagram and Business Process Description 6 for traceable asset verification</td>
<td>Depends upon the value chain in question</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>5.10 Is the receiving value-chain partner going to transform the traceable asset?</td>
<td>Is the next process a transformation process?</td>
<td>------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>5.10.1 IF the Receiving value-chain partner will implement a transformation process - Go to Process 4 (AD and BPD 4)</td>
<td>IF the Receiving value-chain partner will implement a Transformation Process - Go to Process 4 (AD and BPD 4)</td>
<td>&quot;&quot;&quot;&quot;</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>5.10.2 IF the receiving value-chain partner will only store or transport the traceable asset then repeat this Process 5 but the Receiving value-chain</td>
<td>IF the next process is transport to another value-chain partner – be it a TVCP or a PGVCP, then repeat this process (5) BUT the “Receiving Value-Chain Partner” in the first iteration becomes the “Sending Value-Chain Partner” in the next iteration.</td>
<td>&quot;&quot;&quot;&quot;</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td><strong>partner will become the Sending value-chain partner</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Output and criteria to exit the business process</strong></td>
<td>The logistics units containing traceable assets are delivered to the Receiving Value-Chain Partner (TVCP or PGVCP) and, if the Receiving Value-Chain Partner is a warehouse, they are placed in storage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other Observations, in particular related to traceability needs for different activities</strong></td>
<td>If the next process is requesting the transport of traceable assets to another PGVCP or TVCP, restart this process AD5 and BPD5 – changing the “Receiving Value-Chain Partner” in the first iteration to be the “Sending Value-Chain Partner” in the next one</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If the next process is the Traceability exit point – go to AD6 and BPD6,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Otherwise, the next process is a next transformation process so go to AD4 and BPD4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5.7 Process 6 – Verify claim

Verification of a claim can take place at the end of any transformation process in addition to the point where the traceable asset exits the traceability system.

Depending on the claim, verification could involve access to data (through online systems or manual records), or it could involve testing the physical product for hazardous substances or performance. The verification process is what enables the traceability/transparency requestor to communicate the reliability of a claim to the customer.

If verification of the claim is not possible, the traceability system should still allow verifiers to identify and evaluate where any gaps occurred or where the issue / fault has arisen in order to take corrective action and, if that is not possible, to remove the traceable assets in question from the value chain.

The claim verification process is shown in figure 12 with the activity diagram and table 9 with its business process description.

There is then a more detailed explanation of how, in an online system, basic traceability data is saved and retrieved and how this basic traceability data allows a transparency information requestor to find the sustainability information that they need in order to verify a claim.
Figure 12
Process 6 – Verify claim – activity diagram
<table>
<thead>
<tr>
<th>Name of process</th>
<th>Generic Traceability Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of business process activity</td>
<td>6. Claim Verification</td>
</tr>
<tr>
<td>Process participants</td>
<td>Traceability / Transparency Information. Requestor, Transformation Value-Chain Partner (TVCP), Verification Body</td>
</tr>
<tr>
<td>Input and criteria to enter/begin the process</td>
<td>This process can be implemented at the end of any transformation process (so the traceable asset should have finished at least one transformation process) and/or it can be done at the point where the traceable asset exits from the traceability system.</td>
</tr>
<tr>
<td>Parallel Processes</td>
<td>Depending upon the verification processes required, this could be done during transportation or warehousing (see Activity Diagram and BPD 5), or in some cases during a transformation process</td>
</tr>
<tr>
<td>Description of Activities</td>
<td>A step-by-step description of what happens in the process.</td>
</tr>
<tr>
<td>Periodicity</td>
<td>Daily, monthly, every 8 weeks, yearly, etc.</td>
</tr>
<tr>
<td>Required Other Information / Communication method</td>
<td>+ Who sends info to Who</td>
</tr>
<tr>
<td>6.1 Request for Proof/Verification of claim</td>
<td>The Traceability / Transparency Information Requestor requests from the Transformation Supply Chain Partner (TVCP) Proof/Verification for the claim. Which TVCP they contact is determined by the claim and the information in the shared data repository for traceability information. Can be done at the end or beginning of any transformation process and/or at the traceability exit point. Ideally the request for proof/verification should be made based on either statistical sampling or risk analysis.</td>
</tr>
<tr>
<td>Periodicity</td>
<td>Depends upon the value chain and the procedures of the Traceability / Transparency Information Requestor</td>
</tr>
<tr>
<td>Required Documents + Who sends them to Who</td>
<td>Includes entry of data into computer systems</td>
</tr>
<tr>
<td>6.2 Can the transformation value-chain partner respond to the request?</td>
<td>Could be a request made through an online system or an automatic request based upon either risk analysis or a sampling algorithm</td>
</tr>
<tr>
<td>Required Other Information / Communication method</td>
<td>Could also be via email</td>
</tr>
<tr>
<td>6.2.1 IF value-chain partner cannot comply they will - Send Explanation</td>
<td>TVCP Informs Traceability / Transparency Information Requestor why cannot comply with request</td>
</tr>
<tr>
<td>6.2.2 Take remedial action</td>
<td>TVCP takes action to fix problem(s) to ensure this does not happen in the future and sends this information to the Traceability / Transparency Information Requestor</td>
</tr>
<tr>
<td>6.3 Can proof/verification be provided from existing information?</td>
<td>Can the TVCP provide existing information (such as certificates, inspection reports, etc) that are adequate proof/verification of the claim?</td>
</tr>
<tr>
<td>6.3.1 If existing information can provide proof/verification, identify and send proof</td>
<td>If the needed proof/verification can be provided using existing information, identify and send the relevant information/documents</td>
</tr>
<tr>
<td>6.3.2 IF existing information cannot be used, value-chain partner sends Request for verification activity to the verification body</td>
<td>Send request for verification activity from the transformation value chain partner (TVCP) to the verification body</td>
</tr>
<tr>
<td>6.3.3 Receive Verification Request</td>
<td>Verification body receives verification request from TVCP</td>
</tr>
<tr>
<td>6.4 Audit or other verification activity undertaken</td>
<td>Verification body undertakes requested inspection, audit or other verification activity</td>
</tr>
<tr>
<td>6.5.1 Results Registered</td>
<td>Verification body registers result of verification activity</td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>6.5.2</td>
<td>Result of verification sent to Transformation Value Chain Partner</td>
</tr>
<tr>
<td>Verification body</td>
<td>Verification body sends results of verification activity to the requesting TVCP</td>
</tr>
<tr>
<td>TVP</td>
<td>Most likely through an on-line system or via email in a Word (or similar) document in a standard format</td>
</tr>
<tr>
<td></td>
<td>There could also be an exchange of related emails</td>
</tr>
<tr>
<td>6.5.3</td>
<td>Receive Results of Verification</td>
</tr>
<tr>
<td>TVP</td>
<td>TVP receives results of the requested verification activity from Verification body</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>6.6.1</td>
<td>Results Registered by TVP and communicated to Traceability / Transparency Information Requestor</td>
</tr>
<tr>
<td>TVP</td>
<td>TVP registers results and communicates them to the Traceability / Transparency Information Requestor</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>6.6.2</td>
<td>Traceability / Transparency Information Requestor also registers the Results from verification activity</td>
</tr>
<tr>
<td>Traceability / Transparency Information Requestor</td>
<td>Traceability / Transparency Information Requestor also registers the Results from verification activity and informs the TVP if results are acceptable or not</td>
</tr>
<tr>
<td></td>
<td>Results are most likely registered in a computer system and/or on-line</td>
</tr>
<tr>
<td></td>
<td>If there are questions or issues, there may be an associated exchange of emails and/or telephone calls</td>
</tr>
<tr>
<td>6.7</td>
<td>Were the verification results acceptable?</td>
</tr>
<tr>
<td>IF results are acceptable to TVP and Traceability / Transparency Information Requestor - then it is the end of this process</td>
<td>IF results are acceptable to TVP and Traceability / Transparency Information Requestor - then it is the end of this process</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>6.7.1</td>
<td>IF results are not acceptable - Corrective Action</td>
</tr>
<tr>
<td>IF results are not acceptable to TVP and/or Traceability / Transparency Information Requestor - then the TVP will need to take corrective action based upon information in the Verification Body’s report</td>
<td>Frequency will depend upon reliability of traceability procedures and participants</td>
</tr>
<tr>
<td></td>
<td>There may be an exchange of emails or telephone conversations to agree upon corrective actions between the Traceability / Transparency Information Requestor and the TVP – these could also include the Verification Body</td>
</tr>
<tr>
<td>6.7.2</td>
<td>Remove Traceable Asset(s) in question from value chain</td>
</tr>
<tr>
<td>Remove Traceable Assets that failed verification from the value chain</td>
<td>This will need to be registered in an ERP or inventory management system</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>6.7.3</td>
<td>Report on Corrective Actions</td>
</tr>
<tr>
<td>A report on corrective actions taken may be made by the TVP to the Traceability / Transparency Information Requestor – whether such a report is needed will</td>
<td>This report could be made via an automated system. It could also be</td>
</tr>
<tr>
<td></td>
<td>It could also be made via emails and pdf documents</td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>6.8 Actions Registered</strong></td>
<td>The Traceability / Transparency Information Requestor registers the Report on Corrective Actions</td>
</tr>
<tr>
<td><strong>Output and criteria to exit the business process</strong></td>
<td>Verification Process has been completed and if either the TVCP and/or the Traceability / Transparency Information Requestor found that the results were not satisfactory, then corrective action has been taken and recorded.</td>
</tr>
<tr>
<td><strong>Circular economy related observations</strong></td>
<td>If traceable assets are regularly rejected/disposed of during this process and they cannot be re-sold, then there may be a need for re-cycling activities to avoid sending the rejected assets to landfill or for burning.</td>
</tr>
</tbody>
</table>
Obtaining information during the verification process is most often done in two-steps. The first step is to find the relevant basic traceability information (in the 5-Ws information discussed earlier) which allows the information requestor to identify which value-chain partner(s) has the needed sustainability information such as certificates or test results. In some cases, only this first step is needed to verify a claim. For example, it is possible that a claim regarding the origin of a product, such as “Grown in Country X” (i.e. Egyptian cotton), could be verified using just the basic traceability information (in the case of Egyptian cotton, if traceability goes back to the farm). On the other hand, the vast majority of sustainability claims, such as “No hazardous chemicals used”, require verification via test results, certifications or records of similar processes such as audits or inspections – and this information is obtained only in the second, sustainability data, part of the verification process.

The first step in the process, identifying basic traceability information, is illustrated in figure 13, which also shows how each value-chain participant is responsible registering their own small part of the basic traceability information in a shared data repository. The access each participant has to the data on the shared data repository will depend on the access permissions that they are given. This means, for example, that a brand owner might have access to all the data, but a tannery might have access to only the information they enter, or only that information plus the traceability data for everything up until tanning, but not for the processes that follow. Those with access to all the data in the repository have a full picture of product traceability across the value chain.

The rules regarding who has access to which information in a shared data repository should be decided at the time that the data repository is established (probably during process 2) and will depend on who the participants are, their requirements, and the technical characteristics of the data repository.

This basic traceability information is the “key” to obtaining additional, sustainability information, such as certification, inspection and audit data through the second step of the process, obtaining sustainability data for verification, which is illustrated in figure 14 and explained further below.

Figures 13 and 14 are based on the retrieval of information for customers which is the same process as that for obtaining verification information. The only difference is one additional activity which is receiving and responding to an inquiry from the customer.
The second step, the sustainability information request subprocess, is shown in Figure 14. This illustrates how the basic traceability information and the sustainability information in the value chain are linked together. Again, each participant’s access to data in the shared repository will depend on the access permissions that they are given.

In summary, the Transparency Information Requestor goes in the first place to the shared data repository where the traceability information has been stored to find which value-chain partner has the sustainability information.

Steps 1 to 4: Each value-chain partner registers their 5-W information for the traceable asset in a data repository.

Step 5: A consumer contacts a value-chain partner (called here the "Traceability Information Requestor") such as a retail store or brand owner and asks for information supporting a claim.

Step 6: The Traceability Information Requestor then queries the repository to find the relevant basic traceability data and, when appropriate, in a second step, which value-chain partner has additional sustainability information that may be needed. The second step is covered in part II of this process.

Step 7: If the query from Step 5 can be answered from the basic traceability information in the data repository, then the Traceability Information Requestor can immediately reply to the consumer. An example of such a query could be, "Show me proof that this is really 100% Irish wool". If the query cannot be answered with traceability information, then the process has to go to the second step.
needed to support a claim. They then obtain this information directly from that value-chain partner in bilateral communications.

As mentioned earlier in the description of sustainability data, this process of data exchange between the value-chain partner and the transparency information requestor can be automated by using technology such as Application Programming Interfaces (APIs) which can also be programmed to give the information owner (value-chain partner) control over who has access to their information.

Thus, basic traceability information is the “key” to obtaining additional, sustainability information, such as certification, inspection and audit data through the second, sustainability data retrieval process.

Figure 14
Data Flows in the Sustainability Data Process

<table>
<thead>
<tr>
<th>Steps</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A consumer contacts a retail store or brand owner (called here the “Transparency Information Requestor”) and asks for information supporting a claim that requires sustainability information.</td>
</tr>
<tr>
<td>2</td>
<td>The Transparency Information Requestor makes inquiries to the shared data repository (containing the basic 5W traceability information) to determine which value-chain partners have the needed information.</td>
</tr>
<tr>
<td>3 to 6</td>
<td>The Transparency Information Requestor contacts one or more value-chain partners for the information needed to verify the claim. This is normally an automated process using APIs.</td>
</tr>
<tr>
<td>7</td>
<td>The Transparency Information Requestor formats and passes on to the consumer the relevant transparency information.</td>
</tr>
</tbody>
</table>
5.8 Process 7 – Provide claim / traceability information to customer

The information to support claims can be obtained as shown and explained in the previous section in figures 13 and 14. The claim, as determined in process 2, and any needed supporting information, can now be communicated to the customer through product labelling and corporate messaging on websites, social media, etc. Companies need to ensure that corporate messaging is factual according to the sustainability data and that claim requirements can be proven. This will increase customer trust in the brand as well as demonstrating regulatory conformance requirements.

A good understanding of what the claims actually mean is necessary for all staff involved in communications, regardless of where they work, i.e. in store, online, in customer service, in marketing or in public relations.

The activities required for providing information to the customer are illustrated and explained in figure 15 and table 10.
Figure 15
Process 7 – Provide claim / traceability information to the customer – activity diagram

7. Provide sustainability claim/traceability information to customer (optional) - Generic Traceability and Transparency Process

<table>
<thead>
<tr>
<th>Traceability / Transparency System Requestor</th>
<th>Transformation Value-Chain Partner (VCP)</th>
<th>Product Guardian VCP (Retail Store or Warehouse)</th>
<th>Customer</th>
<th>Traceability/Transparency Information Requestor</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1 Decide What/How</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decide what claim verification info will be given to customer and how</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.2 Undertake Marketing Design &amp; Development</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Undertake or subcontract required label design, website development, etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.3.1 Give instructions needed for labelling, packaging, etc.</td>
<td>7.3.2 Receive Instructions</td>
<td>7.4 Prepare labels and packaging</td>
<td>7.5 Go to Activity Diagram 4 for a transformation process for labelling and/or packaging as required</td>
<td></td>
</tr>
<tr>
<td>7.6 Go to Activity Diagram 5 for transportation to warehouse or retail store</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.7 Are goods in retail store?</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.7.1 Display goods on-line and, in some cases, VC information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.7.2 Display goods for sale in retail store</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.7.3 Sell retail goods</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.7.4 Ship on-line sales</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warehouse ships goods directly to customer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.8 Requests VC info</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer requests value-chain information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.9 Obtains value-chain info.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Either before or at the time of the customer request, obtains value-chain information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.10 Formats and sends reply</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Formats reply to Customer's request / question &amp; sends it</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.11 Accesses &amp; reads reply</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer receives, reads and evaluates info.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.12 Does customer have questions?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.13 Send question</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Send question</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

On-line sales could be by a third party who would be a PC/VC/CP-like a retail store. This option is not shown here.
<table>
<thead>
<tr>
<th>Name of process</th>
<th>Generic Traceability Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of business process activity</td>
<td>7. Provide claim/traceability information to customer (optional)</td>
</tr>
<tr>
<td>Process participants</td>
<td>Traceability/Transparency System Requestor, Transformation Value-Chain Partner (TVCP), Product Guardian Value-Chain Partner (PGVCP), Customer, Traceability/Transparency information Requestor</td>
</tr>
<tr>
<td>Input and criteria to enter/begin the process</td>
<td>All transformation activities, including packaging and labelling as well as any verification activities have been completed and the goods are now available for sale to customers – or have been already purchased.</td>
</tr>
<tr>
<td>Parallel Processes</td>
<td>Activity 7.1 may be done in parallel with process 1, Decide Claims and Verification Methods</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of Activities</th>
<th>Description</th>
<th>Periodicity</th>
<th>Required Documents + Who sends them to Who</th>
<th>Required Other Information / Communication method + Who sends info to Who</th>
</tr>
</thead>
<tbody>
<tr>
<td>A step-by-step description of what happens in the process.</td>
<td>Needs to mention all of the participants to this step in the process</td>
<td>Daily, monthly, every 8 weeks, yearly, etc.</td>
<td>Includes entry of data into computer systems</td>
<td>Internal communications within Traceability / Transparency System Requestor as recorded in reports and/or internal correspondence. The Traceability / Transparency System Requestor may also consult with marketing sub-contractors and tier one suppliers.</td>
</tr>
<tr>
<td>7.1 Decide What Claim Verification Info and How to communicate it</td>
<td>Traceability/Transparency System Requestor decides what value-chain (claim verification) info will be given to customer and how. This is normally done BEFORE the product is produced, at the time that the traceability system is being established.</td>
<td>Once for each product, subject to periodic revision</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>7.2 Undertake marketing design and development</td>
<td>Traceability/Transparency System Requestor undertakes, or subcontracts needed label design, web site development, etc.</td>
<td>Once for each product, subject to periodic revision</td>
<td>------</td>
<td>This is part of the specifications for computer systems supporting the traceability/traceability system. In addition, depending upon how the information is communicated to the customer, it may also be in instructions to web site developers, graphic designers and store managers.</td>
</tr>
<tr>
<td>7.3.1 Give instructions needed for labelling, packaging, etc.</td>
<td>Traceability/Transparency System Requestor needs to ensure that subcontractors or divisions responsible for</td>
<td>“ ”</td>
<td>May be reflected in the contract between</td>
<td>Depending upon how the information is communicated to the customer, instructions will be given to suppliers</td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
<td>Responsible Party</td>
<td>Notes</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>-------------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>7.3.2</td>
<td>Receive instructions needed for labelling, packaging, etc.</td>
<td>Transformation Value-Chain Partner (TVCP)</td>
<td>“ ”</td>
<td></td>
</tr>
<tr>
<td>7.4</td>
<td>Prepare labels and packaging</td>
<td>TVCP</td>
<td>“ ”</td>
<td></td>
</tr>
<tr>
<td>7.5</td>
<td>Go to Activity Diagram 4 for a transformation process for labelling and/or packaging (as relevant)</td>
<td>TVCP</td>
<td>See Process Activity 4</td>
<td></td>
</tr>
<tr>
<td>7.6</td>
<td>Go to Activity Diagram 5 for transportation to warehouse or retail store</td>
<td>TVCP</td>
<td>See Process Activity 5</td>
<td></td>
</tr>
<tr>
<td>7.7</td>
<td>Are traceable assets (goods) in a retail store?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.7.1.1</td>
<td>IF goods are in Retail Store - Display them in Store</td>
<td>Display goods for sale in retail store</td>
<td>There may be instructions on displaying how to access traceability information and/or training for staff on how to do this</td>
<td></td>
</tr>
<tr>
<td>7.7.1.2</td>
<td>IF goods are not in a Retail Store - Display goods on-line</td>
<td>Display goods on-line and, in some cases, value-chain information Note: On-line sales could be by a third party who would be a PGVCP like a retail store. That option is not shown here</td>
<td>Display of information on-line in e-commerce site</td>
<td></td>
</tr>
<tr>
<td>7.7.2.1</td>
<td>IF goods are not in a Retail Store - Display goods on-line</td>
<td>Retail store sells goods to Customer</td>
<td>ERP systems keep track of what is being sold</td>
<td></td>
</tr>
</tbody>
</table>

Note: “ ” indicates no specific action or responsibility is described in the text.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.7.2.2</td>
<td>Ship on-line sales&lt;br&gt;Warehouse ships goods directly to customer&lt;br&gt;As frequently as goods are sold on-line&lt;br&gt;Customer invoice is created and sent with goods</td>
</tr>
<tr>
<td>7.8</td>
<td>Customer requests value-chain (claim verification) information&lt;br&gt;This request is made by the customer to the traceability / transparency information requestor. It could be made via a QR code, via a web site or other method, according with what was decided in activity 7.1 above&lt;br&gt;Depends on quantities of goods sold &amp; customer interest&lt;br&gt;Information about what value-chain (claim verification) information is available and how to access</td>
</tr>
<tr>
<td>7.9</td>
<td>Traceability / transparency information requestor obtains requested information&lt;br&gt;Obtains the requested value-chain (claim verification) information either before or after the Customer request. An example, of “before” would be when the information is on a web site. This is done by first using a shared data repository to identify the TVCP(s) who hold the information and then obtaining the information from them&lt;br&gt;Depends on quantities of goods sold &amp; customer interest&lt;br&gt;The agreed (in activity 7.1) value-chain (claim verification) information</td>
</tr>
<tr>
<td>7.10</td>
<td>Traceability / transparency information requestor formats and sends info/reply to customer&lt;br&gt;Traceability / transparency information requestor formats and sends info/reply to customer&lt;br&gt;Depends on quantities of goods sold &amp; customer interest&lt;br&gt;The agreed (in activity 7.1) value-chain (claim verification) information&lt;br&gt;Some of these replies may be standard, generated by a computer system</td>
</tr>
<tr>
<td>7.11</td>
<td>Customer Accesses value-chain (claim verification) Info&lt;br&gt;Customer accesses available value-chain (claim verification) information as decided in activity 7.1 above, reads and evaluates it&lt;br&gt;Depends on quantities of goods sold &amp; customer interest&lt;br&gt;--------&lt;br&gt;As decided in Activity 7.1 above</td>
</tr>
<tr>
<td>7.12</td>
<td>Does Customer have questions about the value-chain (claim verification) information?&lt;br&gt;Does Customer have questions about the value-chain (claim verification) information?&lt;br&gt;If not, then Process 7 comes to an end&lt;br&gt;--------&lt;br&gt;--------&lt;br&gt;--------</td>
</tr>
<tr>
<td>7.12.1</td>
<td>If yes, the Customer has question(s) – Then send the question to the&lt;br&gt;The customer sends the question to the traceability / transparency information requestor, starting back at activity 7.9.&lt;br&gt;Depends on quantities of goods sold &amp; customer interest&lt;br&gt;Content of question and information on how to contact the&lt;br&gt;e-mails or chat</td>
</tr>
<tr>
<td>traceability / transparency information requestor</td>
<td>traceability / transparency information requestor</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td><strong>Output and criteria to exit the business process</strong></td>
<td>Value-chain information to support the verification of the claim(s) about the goods (traceable assets) has been made available to the customer and any customer questions have been answered</td>
</tr>
<tr>
<td><strong>Circular economy related observations</strong></td>
<td>At this point, if there is a program for recovering garments after customer use, it may be useful to make this information available together with the information about the value chain prior to purchase or at the time of purchase.</td>
</tr>
</tbody>
</table>
5.9 Process 8 – Provide claim / traceability information to post-consumption transformation value-chain partner

Claims and traceability / sustainability information are also important when considering post-consumption value-chain partners as this information can be used to ensure that re-use / re-purpose / recycling takes place in accordance with the original production properties of the traceable asset.

The ability to follow and carry the information about a traceable asset into the post-consumption market also completes the circle to either waste or a second cycle of consumption, the latter adding to the full sustainability lifecycle of the product.

Specific examples of this process are explored in the detailed examples given later.
Figure 16
Process 8 – Provide claim / traceability information to post-consumption transformation value-chain partner – activity diagram

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>8.1 Decide What/How</strong></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Decide what info will be given to TVCP-Recycler and how</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>8.2 Go to Process 1</strong></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Decide sustainability criteria and verification methods</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>8.3 Go to Process 2</strong></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Implement verification methods</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>8.4.1 Give instructions to TVCP-recyclers on how to retrieve information</strong></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>8.4.2 Receive Instructions</strong></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>8.5.1 Send order for production waste or end-of-life products</strong></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>8.5.2 Receive order for production waste or end-of-life products</strong></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>8.6.1 Send Waste or End-of-Life Products</strong></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Receive production waste and any accompanying information and/or end-of-life products</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>8.7.1 Requests VC Info</strong></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Requests value-chain information</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>8.7.2 Obtain value-chain information</strong></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Either before or at the time of the TVCP-Recycler request, obtain value-chain information</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>8.7.3 Formats and sends info reply</strong></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Formats reply to TVCP-Recycler's request / question and sends info.</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>8.7.4 Accesses &amp; reads info reply</strong></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Accesses, reads and evaluates info.</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>8.8.1 Does TVCP-recycler have questions?</strong></td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>8.8.2 Send Question</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Send Question</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Name of process</td>
<td>Generic Traceability Process</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Name of business process activity</td>
<td>8. Provide sustainability claim/traceability information to Transformation Value Chain Partner for Recycling (optional)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process participants</td>
<td>Traceability/Transparency System Requestor, Transformation Value-Chain Partner (TVCP Recycler), Product Guardian Value-Chain Partner (PGVCP – Waste Disposal Service Provider), Traceability/Transparency information Requestor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Input and criteria to enter/begin the process</td>
<td>Traceable asset has either been 1) sold and the customer no longer wants it, or 2) it has not been sold and neither the store nor the brand owner wants it</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parallel Processes</td>
<td>Activity 8.2 should be in parallel with process 1, Decide Claims and Verification Methods Activity 8.3 should be in parallel with process 2, Implement Verification Methods/Systems</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of Activities</th>
<th>Description</th>
<th>Periodicity</th>
<th>Required Documents</th>
<th>Required Other Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>A step-by-step description of what happens in the process.</td>
<td>Needs to mention all of the participants to this step in the process</td>
<td>Daily, monthly, every 8 weeks, yearly, etc.</td>
<td>+ Who sends them to Who Includes entry of data into computer systems</td>
<td>Communication method + Who sends info to Who</td>
</tr>
</tbody>
</table>

| 8.1 Decide What Traceable Asset information to give to Recycler | Traceability/Transparency System Requestor decides what value-chain (claim verification) info will be given to TVCP Recycler and how. This is normally done BEFORE the product is produced, at the time that the traceability system is being established. | Once for each product, subject to periodic revision | ------ | Internal communications within Traceability / Transparency System Requestor as recorded in reports and/or internal correspondence. The Traceability / Transparency System Requestor may also consult with TVCP recyclers |

| 8.2 Go to Process 1, Decide Claims and Verification Methods | As part of Process 1, Decide Claims and Verification Methods This is normally done BEFORE the product is produced, at the time that the traceability system is being established. | Once for each product, subject to periodic revision | ------ | This is part of the specifications for the computer systems supporting the traceability/transparency system. |

<p>| 8.3 Go to Process 2, Implement Verification Methods/Systems | Traceability/Transparency System Requestor needs to ensure that subcontractors or divisions responsible for the actions required to provide information to the TVCP recyclers put “” | May be reflected in the contract between Traceability/Transparency System Requestor and value-chain-partners | ------ |</p>
<table>
<thead>
<tr>
<th>8.4.1 Traceability / Transparency System Requestor gives to TVCP Recyclers the instructions on how to retrieve information</th>
<th>Traceability/Transparency System Requestor gives to the Transformation Value-Chain Partner (TVCP) Recyclers the instructions on how to retrieve recycling information needed</th>
<th>Periodically</th>
<th>Information needed for recycling &amp; Instructions on how to retrieve the information needed for recycling</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.4.2 TVCP Recyclers receive instructions on how to retrieve information</td>
<td>Transformation Value-Chain Partner (TVCP) Recyclers receive from the Traceability/Transparency System Requestor the instructions on how to retrieve information needed for recycling</td>
<td>“ “</td>
<td>Information needed for recycling &amp; Instructions on how to retrieve the information needed for recycling</td>
</tr>
<tr>
<td>8.5.1 TVCP Recycler sends order for production waste or end-of-life products</td>
<td>TVCP Recycler sends order for production waste or end-of-life products to the PGVCP Waste Disposal Service</td>
<td>“ “</td>
<td>Order for waste or end-of-life products</td>
</tr>
<tr>
<td>8.5.2 PGVCP Waste Disposal Service receives order for production waste or end-of-life products</td>
<td>PGVCP Waste Disposal Service receives order for production waste or end-of-life products</td>
<td>“ “</td>
<td>Order for waste or end-of-life products</td>
</tr>
<tr>
<td>8.6.1 PGVCP Waste Disposal Service Sends Waste or End-of-Life Products</td>
<td>PGVCP Waste Disposal Service sends production waste or end-of-life products to the TVCP Recycler. If possible, they should also send input IDs (for production waste) or product IDs for end-of-life products</td>
<td>“ “</td>
<td>Transport documents, order information, information about content/origin or treatment of waste</td>
</tr>
<tr>
<td>8.6.2 TVCP Recycler receives the production waste or end-of-life products</td>
<td>The TVCP Recycler receives the production waste or end-of-life products from the PGVCP Waste Disposal as well as any accompanying information</td>
<td>“ “</td>
<td>Transport documents, order information, any additional information about the waste</td>
</tr>
<tr>
<td>8.7.1 The TVCP Recycler requests value-chain information</td>
<td>The TVCP Recycler requests value-chain information from the Traceability / Transparency Information Requestor</td>
<td>“ “</td>
<td>Content of information request</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>May be sent via an ERP system, email, etc.</td>
</tr>
<tr>
<td>Section</td>
<td>Activity</td>
<td>Description</td>
<td>Frequency</td>
</tr>
<tr>
<td>---------</td>
<td>----------</td>
<td>-------------</td>
<td>-----------</td>
</tr>
<tr>
<td>8.7.2 Traceability / transparency information</td>
<td>Requestor obtains requested information</td>
<td>Obtains the requested value-chain information either before or after the TVCP Recycler’s request. An example, of “before” would be when the information is on a web site. This is done by first using a shared data repository to identify the TVCP(s) who hold the information and then obtaining the information from them.</td>
<td>Periodically</td>
</tr>
<tr>
<td>8.7.3 Traceability / transparency information</td>
<td>Requestor formats and sends info/reply to TVCP Recycler</td>
<td>Traceability / transparency information requestor formats and sends info/reply to TVCP Recycler</td>
<td></td>
</tr>
<tr>
<td>8.7.4 TVCP Recycler accesses value-chain Info</td>
<td>TVCP Recycler accesses available value-chain information as decided in activity 8.2 above, reads and evaluates it.</td>
<td>As decided in Activity 8.2 above</td>
<td></td>
</tr>
<tr>
<td>8.8.1 Does TVCP Recycler have questions about the value-chain information?</td>
<td>Does TVCP Recycler have questions about the value-chain (claim verification) information? If not, then Process 8 comes to an end.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.8.2 If yes, the TVCP Recycler has question(s) – Then send the question to the traceability / transparency information requestor</td>
<td>The TVCP Recycler sends the question to the traceability / transparency information requestor, starting back at activity 8.7.2</td>
<td>e-mails or ERP system or chat</td>
<td></td>
</tr>
<tr>
<td>Output and criteria to exit the business process</td>
<td>Value-chain information to support the recycling of the goods (traceable assets) has been made available to the TVCP Recycler and any TVCP Recycler questions have been answered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Circular economy related observations</td>
<td>At this point, a program for providing information to TVCP Recyclers about the availability of value chain information and how to obtain it may be needed.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6. Using BPA to identify where and when to collect TT information

The generic traceability and transparency processes 3 through 5 and 8 correspond to operational activities within a functioning value chain (processes 1 and 2 are planning and putting in place the “infrastructure” for operations, while 6 and 7 are information retrieval and promotion processes).

For these four operational processes it can be particularly helpful to implement the third BPA process discussed in the introduction before implementing traceability and transparency in an existing value chain. To undertake this third BPA process:

1) Mark on the generic activity diagrams which “path” will typically be followed within this value chain

2) Take business process activity diagrams for existing value-chain processes, where traceability and transparency processes will need to be implemented.

   Detailed instructions for developing these activity diagrams for existing processes as well as their corresponding business process descriptions can be found in the Business Process Analysis Guide to Simplify Trade Procedures prepared by UN/ESCAP and UNECE.25

3) Mark on top of these activity diagrams for existing processes where the needed traceability and transparency activities should occur, taking these from the relevant, generic traceability and transparency processes (i.e. processes 3 to 5 or 8).

This process is called “overlaying” a generic traceability and transparency process on top of an existing value-chain process. Used together with the business process descriptions for both the generic and the value chain processes, this should help implementors to:

1) Identify which traceability and transparency activities/actions need to be implemented in each value chain process

2) Identify what existing documents or electronic systems may contain the needed data

Examples of such overlays are given for the leather value chains in the next chapters.

6.1 Gaps in data availability

The potential for good data availability is present throughout the leather and textile value chains from the farm through to the sale of the finished product. Where gaps in data availability exist, they are generally in the upstream supply tiers from the farm through to the slaughterhouse and on to the first transformation facility (tannery) in leather. In the downstream tiers, i.e. when moving the finished leather (when it leaves the tannery) to the product manufacturer and beyond, the gaps are generally related to the recording of data.

That is not to say that data is not available, but often there is no current mechanism for the consistent transfer and sharing of that basic traceability and sustainability data.

Therefore, among the key challenges, up through the sale of the product, when developing an implementation methodology are:

1) Identification of where needed data already exists and the least costly ways for recording this data. As described earlier, depending upon the type of data, it should be recorded either in a shared 5-W traceability information repository, or in a remotely accessible, shared database for transparency information which may be controlled by one or more value-chain partners.

2) Identification of needed data which does not already exist and the least costly way for collecting and recording it. This may not be immediately possible, especially in early upstream processes.

In addition, there is an increasing demand for traceability going beyond the sale to the customer and continuing into the post-consumer phase with the objective of reinforcing the circular economy and ensuring a responsible “next life” for products. This is a largely unexplored area where there are many questions and much research

25 https://www.unescap.org/resources/business-process-analysis-guide-simplify-trade-procedures# A detailed description of how to implement a complete BPA.
going into issues such as how to “tag” products in a way that allows identification after consumer use. Different solutions for the responsible collection and disposal of post-consumer products are also being explored. All of these factors influence the need for and the potential usefulness of traceability and transparency information.

It is hoped that by outlining the possibilities for a complete system, the traceability and transparency information gaps in implementing value chains will begin to disappear, through future adoption, thus giving visibility to the entire value chain and supporting the enhancement of sustainability in the garment and footwear sectors.
Part II. The Leather Value Chain BPA

Preface

This part has three chapters that focus on the processes and actors in the leather value chain for livestock and exotic hides and skins. Its purpose is to support the implementation of transparency and traceability for sustainable value chains in the leather goods sector, with livestock more often being a complex value chain, and exotics more often a controlled value chain, particularly when owned by brands.

The three chapters are:

1) A brief overview of the processes and actors within the leather value chain with two use-case diagrams showing first the more complex value chain common for livestock leathers and, second, the more controlled value chain common for exotic leathers.

2) An overview of sustainability risks in the sector and tools that offer full or partial solutions.

3) The information/data requirements for transparency in traceability systems and the leather value chain.

1. The processes and actors in the leather value chain

This chapter is a starting point for understanding the leather production landscape, by providing an outline of the processes necessary to convert the hides and skins from livestock and exotic animals into leather. Although this chapter does not look in detail at the risks and sustainability issues arising from leather production processes, it does introduce key topics such as Animal Welfare,\(^{26}\) Hazardous Chemicals Use,\(^{27}\) and Biodegradability.\(^{28}\) These sustainability elements, as well as related legislation and certification (i.e. CITES), are covered in chapter 2.

Within leather production processes there is a great deal of variability. In order to reduce the complexity of the model being described, we have created a generic value chain model that shows all processes once – even though not every manufacturer of leather will use every process, nor will they follow the processes below in the same sequence. The reader should consider the “direct” processes shown in the Use Case Diagram to be “modular” with the manufacturer having the ability to change their sequence or even to repeat them, according to the needs of the product and participating actors.

In annex 3 to this document, there is a glossary with definitions of the technical terms used in these three leather value chain chapters.

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26 Animal Welfare – OIE World Organisation for Animal Health, is the World Trade Organisation (WTO) reference organisation for standards relating to animal health. The OIE publishes 2 codes (Terrestrial and Aquatic) and 2 manuals (Terrestrial and Aquatic) as principle reference for WTO members. The codes aim to assure to sanitary safety of international trade in terrestrial animals and aquatic animals, and their products.
https://www.oie.int/en/standard-setting/terrestrial-code/access-online/?htmfile=titre_1.7.htm
https://www.youtube.com/watch?time_continue=186&v=VCfG_Mt2KtY&feature=emb_logo
RSPCA Animal Welfare Standards: https://science.rspca.org.uk/sciencegroup/farmanimals/standards
World Animal Protection Index: https://api.worldanimalprotection.org/

27 Chemicals, including risk of Chrome VI – UNIDO Framework for Sustainable Leather Manufacture (second edition), pages 106-107 give useful guidance on this subject:
SATRA article: https://www.satra.com/spotlight/article.php?id=478
REACH Annex XV11, Entry 47 Chromium VI Compounds: https://echa.europa.eu/documents/10162/1f775bd4-b1b0-4847-937f-d6a37e2c0c98

System for biodegradability evaluation on leather used in the footwear industry: https://www.researchgate.net/publication/289052625_System_for_biodegradability_evaluation_on_leather_used_in_the_footwear_Industry
Livestock Hides and Skins

One reason the leather value chain for livestock hides and skins is complex is because leather manufacturers (tanneries) can provide different sets of production processes. Some tanneries perform the entire transformation process from the raw hide/skin through to the finished material while others will only perform a part of the process. This results in a range of “supporting” actors that may vary from one value chain to another, even for the same product.

These actors include: Agent Traders who buy and sell material at different stages; Agents who act on behalf of the brands to buy material from a number of sources to fulfil product manufacturing needs; Subcontractors who perform transformation processes on behalf of a tannery (they do not own the material but do participate in the production). These “supporting” actors add a level of complexity to achieving full transparency and accountability from a sustainable production perspective.

For the purposes of this project, sheepskin and hair-on-hide are recognised as livestock hides and skins.

Exotic Skins

Some value chains for exotic skins function in a manner similar to those for livestock hides/skins, but, generally, exotic skins have more controlled value chains. This is primarily due to additional sensitivities and legal issues, but also because exotic skins are more prevalent in luxury items and the luxury brands are more likely to manage their value chain from farm to product. It is also more frequent for luxury brands to own their own farms, slaughterhouses and tanneries for exotic leather production.

Due to the increased consumer sensitivity and regulatory requirements when manufacturing leather from exotics, luxury brands are under stronger pressure to provide clearer mapping of value chains and tighter control. However, it should be recognised that good value chain mapping is also demonstrated by tanneries working with livestock hides/skins.

This chapter consists of:

- **Section 1:** Identification and brief descriptions of leather value chain processes. (This is a brief overview of the processes and is not intended to be a comprehensive technical guide to leather manufacturing. As mentioned earlier, a comprehensive glossary of technical terms is published separately).

- **Section 2:** Identification and brief descriptions of the actors in the leather value chain.

- **Section 3:** Use Case Diagrams – Leather Value Chains – Complex and Controlled.

### 1.1 Leather value chain processes

The process steps in the manufacture of leather are broadly the same whether dealing with livestock hides/skins or exotic skins. Not all process steps are followed in every value chain, but they are all included here in order to cover the broad remit of leather production.

Presently, there is no specific process that is mandatory or widely recognised for traceability as part of the leather manufacturing process. As a result, there is no common approach and within the processes described there are various points where identification for traceability could be applied to individual hides/skins, batches of material, product batches or even individual products. There are a number of different identifiers which are used in different parts of the value chain, including: ear tagging of livestock coupled with computerised or manual record systems at slaughterhouses, branding of livestock, physical stamping at the slaughterhouse or at receiving tannery, DNA marking, ceramic marking and laser marking of hides/skins at the tannery, etc. It is worth noting though that identifiers still pose challenges in terms of cost-effectiveness and scalability.

There is also no standard system or approach for tracking chain of custody or for the collection of information that could be linked to identifiers (for example, on sustainability).
The leather value chain processes, illustrated below, are numbered to correspond with the descriptions and the numbered processes in the Use Case Diagrams\textsuperscript{29} at the end of this chapter. The value chain production processes are separated at points where a change of ownership or custodianship could occur, i.e. in the case of sale of the goods or subcontracted operations.

**Figure 17**

**Flowchart of key leather processes**

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**Process 1 – Farming of livestock**

Leather is manufactured from the hide or skin of an animal. There are various farming models:

- Farms that raise animals from birth to end of life
- Private or family small holdings
- Industrial systems that start with birthing farms, before moving livestock to rearing/raising farms and then moving the livestock to finishing yards (sometimes known as feedlots).
- Exotics systems that combine egg breeders/collectors, hatchling farms and finishing farms

Different factors affect the type of farming undertaken: socio-economic conditions, dairy & meat industry practices, exotics farming practices, consumer expectations, geographic & regional limitations / restrictions / legal requirements.

If identification of livestock during farming takes place, this is generally achieved through the use of ear tagging or branding upon entry of livestock to the value chain (birth) and movement is monitored by computerised or manual tracking of the identification number/code on the ear tag/brand mark. Where these methods are utilised, livestock can be traceable from birth to slaughter. Without ear tagging or branding there is the possibility of manual tracing through batch identification, paperwork and invoicing, but even this does not always happen in some less-developed regions and the movement of animals can make it difficult to undertake tracing based upon paperwork alone.

\textsuperscript{29} A use case diagram is the highest-level diagram in a business process analysis (BPA) and shows participating actors and the main sub-processes in the business process that is being analysed. These sub-processes are then broken down into activities which are documented in activity diagrams and business process descriptions.
Process 2 – Slaughter

The slaughter of livestock commonly takes place in an industrial slaughterhouse or abattoir, where the animal is slaughtered with the meat (from livestock) going to be butchered and the hides/skins sent for leather making or other by-product manufacturing.

However, other kinds of slaughter take place, among these smallholdings or individuals who slaughter their own animals. This can, in some cases, result in poor animal welfare practices and cruelty to animals. This is an ongoing, sensitive issue in the meat industry, and it is considered that traceability and transparency of value chains can enhance the visibility of such practices and therefore allow more informed choices for producers and consumers. The leather industry can only influence the meat industry through dialogue and purchasing decisions, however, examples do exist of supply chain co-operation, that works to make sure that the source of meat as well as hides/skins comes from farming systems that have the highest animal welfare standards.

The slaughterhouse is the exit point for the animals’ life and the entry point for hides/skins into the leather production process. The animal identification number/code will be recorded to complete the farming requirements, where they exist, via either an electronic or manual system. Some slaughterhouses physically mark hides/skins with codes that denote the place and date of slaughter before sale to the tannery and this information could, in theory, be passed to the tannery when the hides/skins are sold. The onward preservation, integrity and usefulness of the physical marking of hides and skins remains challenging though, during the subsequent transformation phases and also in consideration of commercially sensitive information.

Identification can be applied to hides/skins at many of the entry or exit points in the processes outlined below, either by a permanent mark that will stay with the material throughout the process or by individual identification/batch identification which is recorded or applied at the different manufacturing sites. Tracking of identifiers can be electronic or manual (through invoices, despatch notes, bills of lading, etc). However, since there is no current standard method or requirement for this identification, from this point forward, it is not detailed as an existing routine process and will be addressed in chapters 2 and 3.

Process 3 – Hide / skin preservation

Some slaughterhouses have tanneries attached to them, for example some of the larger meat packing companies or integrated cooperatives have a production process that integrates slaughter, meat packing and leather making. In this case, the hides are generally processed as “fresh” hides where no preservation is necessary, or “refrigerated” hides where ice is used within insulated containers for up to 3 days transportation/storage before transformation processes begin. This can be extended to 5-7 days if refrigerated trucks or containers are used for transportation.

However, for the majority of hides there is a longer transportation/shipping time from the slaughterhouse to the purchasing tannery and, therefore, it is necessary to “preserve” the hide/skin from breaking down and deteriorating.

The most common form of preservation for hides and skins is “salting”, however, other methods used include: “drying”, “bactericides”, “brine curing” and “lowering water activity” (reducing water content to inhibit bacterial activity). “Pickling” and “tanning”, which are also used in intermediate stages in leather manufacture, can also be used for preservation. These last two methods are detailed further in the following processes.

During the preservation stage, some initial sorting and grading of the hides/skins will also take place. This process allows for the material to be grouped according to quality and size, and this can be repeated at various production stages.

Process 4 – Tanning (raw to tanned leather process)

This process groups a number of activities which, combined, form the first transformation stage from a raw hide/skin to tanned material. Usually, these activities take place in one facility.

Soaking, liming and fleshing

The first transformation step in a tannery is to rehydrate the hide to the optimum state for tanning. The procedure followed will vary slightly depending on the preservation method used. Once optimum hydration
through soaking is reached, the hides/skins are “unhaired” (unless sheepskin or hair-on-hide) and “limed” where a combination of chemicals are used to open up the fibre of the hide and to remove the hair and epidermis. It is important that the liming process is carried out with care in order to (a) maximise the surface yield without over relaxing the structure of the hide/skin or damaging the grain and (b) prevent excessive pollutants in the effluent. The liming process is crucial to the end quality of the leather.

Fleshing, where any residual tissue, fat or remnants are removed by manual or mechanical knives, takes place after liming, however, this could be carried out in advance (in between the soaking and liming) particularly when processing sheepskin or hair-on-hide material where the unhairing process is not required.

At this stage, the hides/skins can also be split (see Process 5) where the hide is put through a mechanical blade to split the material into two pieces – the top split will be processed for leather and the drop (bottom) split can be used for the production of by-products such as gelatine and medical ingredients for ointments, etc.

Deliming and bating

The residual lime must then be removed/neutralised, and this is generally done using ammonium salts, weak acids or other deliming agents. Carbon dioxide can be used to minimise the amount of chemicals required for deliming.

The hides are then “bated” where enzymes are used to remove any residual hair/cells and to soften and improve the elasticity of the hide. Different enzymes create different effects in the leather and can be used to achieve different performance qualities for the end product.

Degreasing and pickling

Degreasing takes place to remove natural fats that are more prevalent in some types of livestock (for example sheepskin) in order to prevent non-conformity in later processes; for example, dye absorption, spew (formation of white surface deposits on the leather) or to prevent dark or greasy patches in the finished leather.

Pickling is a process using acids and salts to reduce the pH of the pelt to a suitable level for tanning with chromium or other minerals. It is not necessary for vegetable tanning (see more on tanning types below).

Tanning

This is the first full transformation stage from the hide/skin to leather.

There are three main methods used for tanning – “Chrome Tanning”, “Synthetic Tanning” and “Vegetable Tanning”. Each of these methods has different production requirements with varying environmental impacts or considerations, and each can provide different commercial and technical performance results.

- **Chrome tanning** is the quickest and most cost-effective method and can be used to produce any leather type except for sole leather which is made using the vegetable tanning method. Chrome tanning is achieved using Chrome III, a non-toxic chemical, in rotating drum vessels with a relatively quick processing time and results in “wet-blue” material, called this because of its blue-green appearance. It is reported (UNIDO 2019)\(^30\) that while there is a risk of the formation of Chrome VI in leather (a very low-intensity allergen) when using this tanning method, this only occurs if the tanning process is not carried out correctly.

- **Synthetic tanning** (chrome-free or metal-free) uses a similar process to Chrome tanning but with synthetic substances and vegetable compounds to stabilise the material and this process results in “wet-white” material, so called because of its whiteish colour. This process can be more costly and requires more controls than Chrome tanning.

- **Vegetable tanning** is achieved using natural tannins from wood, leaves, tree bark and fruits, and is the oldest method of tanning leather. This traditional process uses a series of large open vats and can

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take from 30 to 60 days. Options for use and colour can be more limited and this method is most commonly used for the production of shoe sole leather or other heavy leather applications. Vegetable tanning produces a brown-coloured leather that can be dyed to another colour. The use of drums can also be adopted, and this can speed up the process resulting in a softer or lighter leather for linings and leather goods.

Sammying

“Sammying” is the process of passing the tanned material through rollers to remove excess water and reduce wrinkles/folds.

Process 5 – Splitting (if necessary), shaving and sorting

Leather can be split at this stage to reduce the thickness of the original hide. This results in a top “grain split” used for shoes, gloves, purses, clothing, and the “flesh split” leather (bottom part of the hide), often known as split suede which can be finished/coated and used for clothing, shoes, gloves, and bags. Whether the leather is split or not depends on the thickness of the original hide/skin and its intended application. With very thick or heavy hides it is also possible to create a “middle split”.

In all cases, the material is passed through shaving machines with very precise blades to ensure uniform thickness of the material before sorting it into quality grades ready for the next stage.

Process 6 – Retanning, fatliquoring and crusting (if necessary)

Retanning/fatliquoring

This important process varies according to the desired end result. The process is adjusted for different leather types (i.e. split leathers, nubuck, suede) and different leather uses (i.e. shoe uppers, garments, upholstery and bags). Retanning is used to improve or modify the characteristic properties of the material for look, feel, buffing and dyeing, water resistance and colour fastness.

Fatliquoring (or oiling the leather) also occurs at this stage to lubricate the fibres of the material for appearance, feel and durability.

Crusting (if necessary)

Some tanneries will not need this stage if they are transforming their material from raw hide all the way into finished product. However, if the tannery is selling the leather to be finished in another tannery, they may dry the material to a “pearl crust leather” state before sale. Tanners may also dry their material to store it until they have order requirements (especially colour) for specific finishes, or it may not be carried out until post-dyeing resulting in a “dyed crust leather”.

Essentially crust leather is just the dried state of the tanned/retanned/fatliquored/dyed material.

Process 7 – Dyeing, setting out/sammying

The leather is dyed using chemical dyes (all colours) and pigments (especially white) to achieve the desired end colour. This relies on a good understanding of how dyes work along with strict controls and processes to ensure that colours between batches remain consistent. Rates of exhaustion (amount of dye taken up by the material divided by the amount of dye used) are also crucial to ensure colour fastness and light fastness (resistance to fading when exposed to light or water).

Setting-out or sammying is next and consists of removing excess water by, again, passing the re-tanned and dyed material through mechanical rollers.

Process 8 – Drying, conditioning and softening and finishing

There are two main methods of drying leather – air drying where the leather is suspended on racks above the tannery floor (sometimes combined with passing the leather through drying tunnels with controlled temperature and humidity) or vacuum drying where the moisture is removed by heating the leather and
suctioning up the water vapor. Other methods include pasting (where the leather is pasted on a smooth surface and heated in a drying tunnel) and toggling (where the leather is stretched and fixed on a metallic frame before heating in a drying tunnel).

Often, Process 8 also is done before Process 6 if a crusting strategy is being used but it then has to be repeated after the dyeing step.

After drying, the leather is softened, this is done by mechanically staking (a pummelling action) to soften and improve the appearance of the material. The machinery used is either a rotary or vibratory staking machine for staking, or a dry drum for the milling form of softening.

During finishing, the leather is given final treatments to suit the end product requirements. This could involve embossing, printing and other techniques including adding a shine or dulling down the appearance of the leather. Further shaving (buffing) could also take place at this stage. The finishing process can involve coating additional surface layers onto the leather to add colour, smoothness, surface protection, durability, or fashion effects. Finishing chemicals can include colourants (e.g. dyes and pigments), film-forming materials (e.g. polymers) and other auxiliaries to create specific characteristics. A heat transferred foil application can also be applied in this finishing stage.

The leather is then sent for quality control, grading, measurement and packaging before despatch to the product producer/manufacturer/brand.

Process 9 – Product assembly
Transformation into the finished product (apparel, handbags, shoes, belting, accessories) may take place at a brand facility or at an intermediary factory. The product assembly can involve re-finishing the leather to add effects or enhance durability.

The leather is cut out, sewn together, backed, punched, etched, or moulded to take on the shape of the final product.

Process 10 – Fulfilment / retail
Product sale to consumers and end users. The in-life (consumer use) of leather is characteristically devoid of washing cycles. Leather, unlike textiles, does not generally get washed, so avoids water and energy use in-life.

Process 11 – Post-consumption
This could be re-cycling, re-use, re-purposing or waste disposal. Leather is a good example of a material that can be recycled and reused and there are organisations who specialise in transformation and restoration of leather.

Leather has historically been manufactured to provide longevity which is why it is seen as a high-quality, durable material. Some leather may not be suitable for biodegradability success as a result of finishing applications (foils, bonded leather, etc). Innovation is developing leather production methods that result in the material starting to biodegrade after a pre-determined period of time.

1.2 Actors in the leather value chain
In order to better understand their roles in transparency and traceability, Table 12 provides an overview of the primary actors in the leather value chain. Not all actors participate in every value chain.

Table 12
Leather value chain participants

<table>
<thead>
<tr>
<th>Participant</th>
<th>Description</th>
</tr>
</thead>
</table>
| Agent / Trader   | Organisations that buy material from slaughterhouses or tanneries and sell it to other tanneries (sometimes pre-tanned, sometimes part or semi processed and sometimes finished material; or a combination) and Importers/Exporters who buy and sell material. Some agents/traders may
<table>
<thead>
<tr>
<th>Participant</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant</td>
<td>carry out a mechanical process (i.e. splitting) on semi processed leather before selling it on; however, if the process is a transformation process or uses chemicals to alter the leather then the agent/trader would be classed as a tanner.</td>
</tr>
<tr>
<td>Brand Owner / Retailer</td>
<td>Brands and retailers have multiple responsibilities: at the design and product concept step in the value chain, in selecting material and sourcing strategy, and also in the marketing and final sale of goods to consumers. Brands and retailers may also be involved at various stages along the value chain to ensure quality and standards are maintained and can be involved in the collection and recycling of products at end-of-life.</td>
</tr>
<tr>
<td>Customer (including consumer)</td>
<td>Customers are often the customers of the traceability system requestor, but they can also be suppliers; so the customer could be the weaver who is buying organic cotton thread, or the final customer who is purchasing the garment. In other words, it is whoever is purchasing goods, based (at least in part) on a claim made by the seller.</td>
</tr>
<tr>
<td>Farmer / Breeder</td>
<td>Breeders, raisers, finishers, small holdings, individuals, and industrial production farmers.</td>
</tr>
<tr>
<td>Farm Supplier</td>
<td>Suppliers of feed, equipment, animal health products and services.</td>
</tr>
<tr>
<td>Inspector / Certifier: Auditing and Certification</td>
<td>Organisations that audit or inspect and certify compliance with traceability, environmental performance, social good practice and governance good practice, in order for the tanneries and brands/retailers to make sustainability claims about their products.</td>
</tr>
<tr>
<td>Inspector / Certifier: Testing Services</td>
<td>Testing houses that test and certify that the leather produced does not contain harmful substances above legislative limits or that chemicals used to perform the transformation do not contain banned substances. Other tests are performed to check colour fastness, physical performance, flammability, disintegration and biodegradability.</td>
</tr>
<tr>
<td>Manufacturers – Garment / Product</td>
<td>Organisations who transform finished leather into garments and products and despatch them to brands/retailers.</td>
</tr>
<tr>
<td>Product / Service Transformation Supplier</td>
<td>Chemical companies, machinery companies and other suppliers who provide materials/equipment to enable the transformation from hide/skin to leather.</td>
</tr>
<tr>
<td>Service Provider: Waste Services / Treatment</td>
<td>Waste disposal providers, Common or Municipal Effluent Treatment Plants, Recycling Centres.</td>
</tr>
<tr>
<td>Slaughterhouse</td>
<td>The actors in the slaughter process will vary within different regions/countries and can include a mix of slaughterhouses, individuals, meatpackers, and hide/skin collectors/processors.</td>
</tr>
<tr>
<td>Subcontractor</td>
<td>Organisations who perform transformation operations on behalf of a tannery but do not own the material (sometimes this can also be another tannery with spare capacity that does work for the owner tannery).</td>
</tr>
<tr>
<td>Tanner</td>
<td>Different categories of tanneries implement different combinations of leather treatment processes the most common of which include:</td>
</tr>
<tr>
<td></td>
<td>• Raw to pickled/pre-tanned</td>
</tr>
<tr>
<td></td>
<td>• Raw to wet blue/white/veg (tanned)</td>
</tr>
<tr>
<td>Participant</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
|             | • Raw to crust  
|             | • Raw to finished  
|             | • Wet blue/white/veg (tanned) to crust  
|             | • Wet blue/white/veg (tanned) to finished  
|             | • Crust to Finished  

Tanners own the leather they are treating, otherwise they are subcontractors.

Traceability / Transparency Information Requestor  
Many of the actors within the leather value chain, as described above, could be requestors of traceability; farmers (within the farming system model), slaughterhouses, tanners, certifiers/inspectors, product manufacturers and brands. The type and depth of traceability and transparency requested will vary, depending upon the purpose.

Transporter Product Guardian  
Transportation companies are involved throughout the value chain as animals are moved, hides/skins are shipped and then moved from manufacturer to manufacturer before final despatch to the consumer. Transportation is also involved in the delivery of chemicals and other supplies to the tanneries, etc.

Warehouser Product Guardian  
Storage, packing and despatch of finished goods to retail stores or direct to online consumers.

1.3 Use case diagrams

The following Use Case Diagrams show the general flow of processes within the leather value chain. They are designed to cover a complex value chain and a more controlled value chain.

The oval descriptions running down the centre list the major processes described earlier. Running down the left-hand side are the actors who initiate processes. The actors that run down the right-hand side are the service providers/product suppliers that undertake processes initiated by the actors on the left.

Occasionally, an actor participates on both sides, although they are only shown on one, with an explanatory note. For example, in the leather value chain an Agent/Trader is generally a service provider, but may also, at times, initiate a physical process such as the splitting of material.

The “Transportation Product Guardian” and “Certifier/Inspector” are service providers/product suppliers in the same way as the other right-hand side actors. However, since they can contribute to all processes, for illustrative purposes (to prevent the use case diagram from containing too many lines), they have been placed on the far right.

Within the Use Case Diagram for the complex leather value chain example, not all processes will necessarily occur in the sequence shown and some processes may occur more than once. This is an illustrative example given that there are many varied value chain models within the leather industry. The process groupings in this example show where possible transfers of ownership or production could take place (but do not always).

The Use Case diagram processes have been classified and colour coded to represent:

- **Upstream Processes**: Those processes that relate to the raw material production (i.e. farming, slaughter and preservation)
- **Direct Processes**: Those processes that are directly under the control and influence of the tanners / leather manufacturers (i.e. the physical transformation activities from raw hides/skins to finished leather)
- **Downstream Processes**: Those processes that are conducted post-leather manufacture i.e. product manufacturing, product sale, etc.

**Figure 18**
Use case diagram 1 – complex leather value chains

**Process Initiator Actors**

- Farmer / Breeder
- Slaughterhouse
- Tanner
- Subcontractor
- Brand Owner / Retailer
- Manufacturers - Garment / Product

**Processes**

1. Farming of Livestock
2. Slaughter
3. Hide preservation
4. Tanning (raw to tanned process) including soaking, defleshing, liming, bathing, tannining & sammying
5. Splitting, shaving & sorting
6. Retanning / fatliquoring and crusting if necessary
7. Dyeing, setting out / sammying
8. Drying, conditioning & softening (including staking & milling) & finishing
9. Product assembly
10. Fulfilment / retail
11. Post consumption

**Other Suppliers / Service Providers**

- Other Supplier - Farm Supplies
- Other Service Provider - Waste Services / Treatment
- Other Product / Service Supplier for Transformations
- Inspector / Certifier - Testing Services
- Inspector / Certifier - Auditing and Certification
- Agent / Trader
- Warehouser Product Guardian
- Colour Key: 
  - Upstream Process
  - Direct Process
  - Downstream Process

Some meatpackers have their own slaughterhouses and tanneries.

There are different categories of tanner that do either all processes or a combination of part-processes.

Subcontractors may provide a single process or a range of processes.

Actors to the far right are other suppliers / service providers who can participate in any or all of the processes.

Tannery supplies include chemicals, machinery, waste providers, testing providers.

Agents/traders can buy/sell materials across the value chain, either without processing or with small transformation services, in the role of other service supplier.
In chapter 3, for each of the processes (1 to 11) in diagrams 2 and 3, the following information is provided:

- An Activity Diagram (AD) which shows, in a graphic format, all of the activities and their sequence within the process
• Indications in the AD as to where data points for collecting traceability and transparency information could be situated.

• A Business Process Description (BPD) which describes, in text, what happens during each activity in the Activity diagram.
  • The text in the BDP is numbered to match the box numbers in the AD, so if you want to understand better what is happening within a particular box in the AD, look at the entry with the same number in the BPD.
  • At the end of each BPD, circularity observations, related laws, regulations and rules, and a list for that process of the principal sustainability risks, criteria and verification methods where applicable.

The above information can be used by participants in the leather value chain to identify the key risks within their processes, the actors involved and related individual activities.

The information about actors and activities can then be used to identify where it may be possible to collect information that will allow for a better control and reduction of risks.

2. Sustainability Risks and Risk Reduction in the Leather Production Lifecycle

This chapter provides information on sustainability risks in leather value chains, linking them to specific, existing value chain processes as documented in their Activity Diagrams and Business Process Descriptions. In addition, it highlights some of the available resources for addressing those risks.

When evaluating traceability and transparency within a leather value chain from a sustainability perspective, the key factors to consider are the:

1) Sustainability Risks within the leather value chain
2) Certification and Inspection services that support risk management in the leather industry
3) Leather Value Chain Processes and their specific sustainability risks, which can be identified in Activity (Workflow) Diagrams (ADs) and their accompanying Business Process Descriptions (BPDs)

One conclusion that can be reached from this analysis is the need to move beyond the typical situation today, where leather industry participants exercise control over, and obtain information from, only their immediate suppliers and have little influence over the upstream and downstream processes that are necessary for the complete lifecycle management of a product.

It is clear that in order to create fully traceable and transparent value chains that support sustainability, it will be necessary to greatly increase cooperation and information exchanges between farmers, abattoirs, product manufacturers, brands and retailers.

2.1 Sustainability risks for consideration in the leather production lifecycle

The principal sustainability risks and sensitivities in the leather value chain are described below and are cross-referenced (with hyperlinks) to the organisations providing sustainable standards and certification programmes, described in chapter 2, section 2 and to the business processes described in chapter 3, section 2. Readers may find this cross-referenced information useful for identifying and managing risk within their own value chains.

These sustainability risks are aligned with existing work conducted by several inter-governmental organisations: the Organisation for Economic Cooperation and Development (OECD), the International...
Trade Centre\textsuperscript{32} (ITC), the United Nations Environment Programme\textsuperscript{33} (UNEP) and research from the United Nations Economic Commission for Europe (UNECE).

Figure 20  
**Sustainability Risks**

**Areas of risk currently outside of consideration**

The following sustainability factors are largely not monitored or evaluated within the leather value chain at the present time. As a result, they are not covered within this chapter, but they should be borne in mind when formulating recommendations for a robust transparency and traceability system for sustainable value chains.

- **Packaging:** The use of packaging for the movement of hides / skins; pallets of semi-processed materials; rolls or consignments of finished leather is not assessed or audited as an environmental aspect. Safe disposal of chemical containers and any hazardous waste is considered as part of chemical management and waste disposal, but not general packaging.
- **Transportation:** Impact of movement via transportation is not a standard measurement at the current time. Some organisations are monitoring this, but carbon footprint is not certified currently. Although some value chains can operate using only local and national transportation, the majority of the leather value chain operates on a global scale and materials are shipped around the world for different processes.
- **Post-consumption:** There is currently no standard mechanism or audit for the final destination/disposal of leather products.

\textsuperscript{32} ITC Standards Map accessible at: https://www.sustainabilitymap.org/standards?q=eyJzZWxlY3RlZENsaWVudCI6Ik5PIEFGRklMSUFUSU9OIn0%3D.

The OECD Glossary of Statistical Terms, defines air pollution as follows:

*Air pollution is the presence of contaminant or pollutant substances in the air that do not disperse properly and that interfere with human health or welfare or produce other harmful environmental effects.*

Risk of air pollution exists at many stages in the leather value chain starting with the handling of animal wastes at the abattoir / slaughterhouse where unpleasant odours could be emitted, and gaseous pollutants released into the air. This could be of particular concern if the facility is in a residential area.

Moving through the physical production of the leather, at various stages of production there is a risk of pollutants being emitted into the air, some deadly like Hydrogen Sulphide Gas (H2S) and others with irritant properties that can contribute to health issues such as Volatile Organic Compounds (VOCs), Sulphur Dioxide (SO2), Nitrogen Dioxide (NO2) and Particulate Matter (PM).

Proper preventive measures include equipment such as Air Emission Filters, PPE for workers, enclosed dying and spraying booths with extraction and filtration and, importantly, appropriate production controls and practices.

A2  Animal welfare

The welfare of animals is a vast topic, particularly when considering large industrial operations or less developed countries where the knowledge, technology and financial means of rural communities may be limited. Traditionally, the welfare of animals during the farming process has been seen as a responsibility of the meat and dairy industry, rather than the leather industry (which transforms the bi-product hide / skin of the animal post-life). However, more current thinking also recognises that without the livestock there can be no leather and, therefore, some shared responsibility is necessary. In addition, the health of the livestock can affect the quality of the resulting hide / skin which in turn can affect the end quality of the leather article.

Other factors to consider when looking at animal welfare include the following:

- Some species are farmed specifically for their skins (more common in exotics) and this can have a positive impact in terms of conservation and preservation of some wildlife species.
- There are areas where hunting is still a way of life and it is used as a way of managing species population, preventing over-dominance by one species which could risk the extinction of other species.
- Overall, biodiversity and ecosystems are interconnected with animals, so alongside the welfare of more common livestock, there is a more complex balance to be considered.

There are areas of the world where the welfare of animals is generally not taken into consideration, and instances of animal cruelty have been widely documented through NGOs and other agencies. The adoption of better practices can be encouraged by increased transparency in value chains. While there are no global
conventions on animal welfare, many countries have national and local legislation based around the 5 freedoms of animal welfare, introduced in 1965 by the OIE World Organisation for Animal Health, which are:

- Freedom from Hunger & Thirst (including ready access to fresh water and diet to maintain health)
- Freedom from Discomfort (including housing and transportation)
- Freedom from Pain, Injury or Disease
- Freedom to Express Normal Behaviour
- Freedom from Fear and Distress

A Global Map produced by the Global Animal Law Association indicates a large number of countries where there are no animal welfare laws in place. These countries are largely in Asia, the Indian sub-continent and Africa, together with two countries in South America (Bolivia and Ecuador). The rest of the world have varying levels of legislation as per the key below:

Case 1: Countries where no animal welfare legislation was found
Case 2: Countries having basic national laws: anti-cruelty laws (or penal code provisions) and new legislation on animal welfare
Case 3: Countries with a national civil code provision giving a new status to animals
Case 4: Countries with a basic national law and a provincial civil code provision giving a new status to animals
Case 5: Countries with a basic national law and a national civil code provision giving a new status to animals
Case 6: Countries with a basic national law and a provincial or local constitutional principle
Case 7: Countries with a basic national law and a national constitutional principle
Case 8: Countries with a basic national law, a national civil code provision giving a new status to animals and a national constitutional principle

More information and a database of animal welfare legislation, at national level, can be accessed from the Global Animal Law Association using the link in the footnote.

While socioeconomics have an impact on the importance given to animal welfare and on what is accepted as good practice in a region, it is important keep in mind that many communities treat their livestock humanely even if they lack machinery or more modern farming methods.

A3 Biodiversity, land and species conversion

Biodiversity includes plants, animals and other organisms and is defined in the Convention on Biological Diversity (CBD) as:

---

Cattle grazing and farming can have an impact on biodiversity, through land conversion, land degradation and loss of habitat. Although overgrazing by cattle can disturb the natural habitats of plants, animals and other organisms, cattle grazing can also have positive impacts on soil regeneration and the control of dominant species which would otherwise eradicate smaller species.

A4  Hazardous chemicals & chemical management

<table>
<thead>
<tr>
<th>Related Value Chain</th>
<th>Business Process Descriptions</th>
</tr>
</thead>
</table>

The leather manufacturing process uses chemicals, dyes and pigments which all require good control processes and pollution control measures.

Most of the chemicals used in leather manufacturing, if not responsibly managed and controlled, have the potential to harm human health and the environment. For that reason, it is one of the most regulated risks within the leather value chain with many regulations around the use and permitted limits of use of chemicals, such as the European Commission’s Registration, Evaluation, Authorisation & Restriction of Chemicals (REACH) regulations.37

In addition, many brands have developed their own restricted substance lists (RSLs) that are lists of chemicals that should not be present in the finished leather of their products. More recently, a Manufacturing Restricted Substances List (MRSL) for leather was introduced by The ZDHC Foundation (Zero Discharge of Hazardous Chemicals). This is a list of chemical substances that should not be used in the manufacture of leather. It should be noted that these 2 types of restricted lists (one for presence in finished products and one for use in manufacturing) are not the same thing and are not inter-changeable. The responsible use of chemicals is, therefore, tightly controlled at both the input and output ends of the leather manufacturing process. Finally, any chemicals that remain in wastewater must be treated in effluent treatment plants to ensure that chemical levels are below permitted legal limits before discharge into the environment. The permitted discharge limits will vary from region to region and country to country. However there are already programmes that are working to standardise wastewater limits globally in the future, such as The ZDHC Foundation and Leather Working Group (see section 2 for more information).

One chemical management risk that has received a lot of attention is the risk of Chrome VI formation. The majority of modern leather manufacturing is carried out using Chromium III which is non-hazardous to health. The greatest concern around its use, from a health perspective, is the potential for the formation of Chrome VI through bad production practices. The instances of Chrome VI formation are rare, and it is sometimes not formed in the manufacture of the leather but in the product manufacture or even as a result of incorrect storage and shipping conditions. Nonetheless, this is still an area with high sensitivity for consumers and brands, as Chrome VI is a carcinogenic which can result in mild to severe allergic reactions.

36 UN Environment Programme (UNEP) Ecosystem Services Bloom or Bust?:
https://www.unepfi.org/fileadmin/documents/bloom_or_bust_report.pdf#:~:text=Biodiversity%20includes%20plants%20animals%20and,part%3B%20it%20includes%20diversity%20within.

### A5 Chemicals: use of salt in preservation

<table>
<thead>
<tr>
<th>Related Value Chain</th>
<th>BPD3. Preservation, BPD4. Raw to Tanned Process</th>
</tr>
</thead>
</table>

Salt (Sodium Chloride) is an efficient method of preserving raw hides/skins for up to 6 months to prevent decomposition. However, that salt must be removed before the tanning process commences and the resultant disposal of the salt can pose an environmental hazard.

In order to reduce the amount of salt in the wastewater from this process, excess surface deposits can be shaken from hide/skin, either manually or using a machine. That solid salt will still be contaminated with enzymes and bacteria from the hide/skin and, therefore, it cannot be recycled without treatment.

The residual salt within the hide/skin will be expelled into wastewater and is not eliminated through the treatment process at effluent treatment plants, which results in it being discharged into the final environment. In addition, some regions, where water is scarce, enforce zero liquid discharge regulations and this results in huge stockpiles of salt with no immediate solution for decontaminating it for reuse (innovation is taking place in this regard, but so far, the proposed processes are expensive). If an effective method of removing the contaminants could be found, then there would be the possibility of a circular reuse of salt for hide/skin preservation.

### A6 Deforestation

<table>
<thead>
<tr>
<th>Related Value Chain</th>
<th>BPD1a. Farming Whole Life, BPD1b. Farming Industrial</th>
</tr>
</thead>
</table>

Deforestation is defined as:

*Decision 11/CP.7 (UNFCCC, 2001).* the direct human-induced conversion of forested land to non-forested land.

*FAO 2001: the conversion of forest to another land use or the long-term reduction of the tree canopy cover below the minimum 10 percent threshold.*

Within the leather value chain, risk of deforestation exists in relation to land conversion for agriculture and grazing. As with most sustainability issues, the elimination of deforestation does not have a one-dimensional solution. It is a complex issue with interlinkages between socioeconomics, traditional practices and a lack of education about the effects of forest loss on the ecosystem.

Almost all regions of the world suffer from some degree of deforestation. However, the Amazon region is where the large-scale conversion of land to cattle grazing has been a major cause of deforestation.

Given that the Amazon accounts for over 50 per cent of the earth’s rainforests, its survival is vital to the future of biodiversity and the natural regulation of global climate. Although it is recognised that cattle grazing is not under the direct influence of the leather manufacturing industry, the use of responsible purchasing in order to minimise the industry’s impact on deforestation remains a potentially important contribution to sustainability.


Energy consumption is necessary for the production of leather and, as with water use, the amount of energy consumed can be affected by the tanning method adopted, as well as the methods for drying and the types of finishing used.

Energy consumption can be minimised through more efficient processes, good machinery maintenance and the use of renewable energy sources including co-generation and the conversion of waste into fuel.

It should be recognised that energy consumption can also be affected by the geographic region that the tannery is situated in, i.e. hot, cold, humid or temperate regions.

The Framework for Sustainable Leather Manufacturing, 2nd Edition\textsuperscript{41} published by UNIDO on their Leather panel, contains a section on Energy Considerations in Leather Processing.

\section*{A8 Greenhouse gas emissions}

Cattle raising is linked to Methane emissions created by the digestive process of cattle. Methane is a greenhouse gas with a global warming potential 25 times stronger than CO\textsubscript{2}. On the other hand, methane’s lifespan in the atmosphere is 10 years, compared to other CO\textsubscript{2} emissions which remain in the atmosphere for 1000 years. Methane also breaks down as a natural cycle, to be reabsorbed by plants and converted into cellulose, which is eaten by livestock.

Other sources of GHG (primarily CO\textsubscript{2}) emissions along the leather value chain are primarily the result of non-renewable energies in production and transportation. Transportation occurs at all stages of the value chain from the movement of cattle, either from farm to farm or to abattoirs / slaughterhouses all the way to package delivery to customers’ homes. It is estimated that fossil fuel use accounts for approximately 87 per cent of all human induced CO\textsubscript{2} emissions. Within fossil fuel consumption, approximately 22 per cent is attributable to the transportation sector.

According to the United States Environmental Protection Agency (EPA)\textsuperscript{42} within total GHG emissions (including Methane and Nitrous Oxide); CO\textsubscript{2} accounts for 76 per cent, Methane 16 per cent, Nitrous Oxide 6 per cent and other gases 2 per cent.

\begin{itemize}
\item BPD1a. Farming Whole Life,
\item BPD1b. Farming Industrial,
\item BPD2. Slaughterhouse,
\item BPD3. Preservation,
\item BPD4. Raw to Tanned Process,
\item BPD5. Splitting,
\item BPD6. Retanning,
\item BPD7. Dyeing,
\item BPD8. Drying and Finishing,
\item BPD9. Product Assembly,
\item BPD10. Fulfilment / Retail,
\item BPD11. Post Consumption
\end{itemize}

\begin{itemize}
\item BPD1a. Farming Whole Life,
\item BPD1b. Farming Industrial,
\item BPD2. Slaughterhouse,
\item BPD3. Preservation,
\item BPD4. Raw to Tanned Process,
\item BPD5. Splitting,
\item BPD6. Retanning,
\item BPD7. Dyeing,
\item BPD8. Drying and Finishing,
\item BPD9. Product Assembly,
\item BPD10. Fulfilment / Retail,
\item BPD11. Post Consumption
\end{itemize}


The Health & Safety of workers is a key risk area and is important in all areas of the leather value chain. Among the most important measures to offset this risk is the use of Personal Protective Equipment (PPE). Key reasons for requiring the use of PPE include:

- Protection from contact with chemicals
- Protection from inhalation of harmful air pollutants
- Protection from moving machinery parts
- Alarms and protection against exposure to H2S gas which can cause death.
- Protection against damage to hearing from excess noise

In some countries the use of PPE is not regulated (or, in some cases, enforced) and, as a result, it is still possible to see workers who are accustomed to working around machinery with bare feet or just sandals. Education, therefore, also has a role to play in ensuring that not only is PPE provided but the workers understand why it is necessary to use it.

Additional Health & Safety measures include the ensuring of safe working spaces, clear access routes, provision of safety data sheets and emergency plans that are understood by workers in their native language, provisions in case of fire or earthquake and measures that guard against the risk of falls, moving parts and other causes of injury.

A10 Human rights

(Child Labour, Slave Labour, Bonded Labour)

One of, if not the most important, human rights risk in the leather sector is child labour. This is a global social sustainability risk which is treated with varying degrees of tolerance in different regions. Almost all countries have specific local and national, substantive laws governing child labour and protection of children’s rights.

There are conventions which are globally recognised, including the UN Convention on the Rights of the Child (CRC)\(^43\) which lists a child as anyone under the age of 18 unless otherwise noted in national legislation and the International Labour Organisation (ILO)’s Minimum Age Convention (no 138)\(^44\) where minimum age is established at 15 years (with 14 years being allowed for a specific period of time, if a country’s economic or educational systems are not sufficiently advanced). The ILO Convention also stipulates that for work with a hazardous, safety or moral risk, the age is 18, whereas for light work that would not interfere with schooling or health then 13-15 years can be allowed.


In addition, there is the ILO Worst Forms of Child Labour Convention, 1999 (no 182) 45 which covers all forms of slavery, trafficking of children, forced recruitment and hazardous work, designed to protect against dangers to the health, safety or morals of children.

In most advanced economies, children of school age are not expected to work on industrial farms raising livestock. However, in areas of rural poverty, farming is intrinsically linked to home life for many children and there could be an expectation that children working on farms is a natural part of family life.

According to an FAO46 Rural Employment Knowledge Materials Factsheet, factors that contribute to making child labour in agriculture (including livestock) difficult to address are:

- Incidence of unpaid family labour
- No formal contracts
- Many hazardous activities in agriculture
- Children’s participation in agricultural activities is a deeply rooted tradition
- Work considered to be in the private sphere due to continuity between household and workplace
- Limited coverage of family undertakings in national labour legislation
- Low capacity of labour inspectors to cover remote rural areas
- Enforcement of regulation is difficult
- Limited self-organisation
- Fragmentation of labour force

Slave labour and bonded labour are also Human Right’s risks that can be associated with the leather value chain and there are ILO conventions that address these concerns:

C029 - Forced Labour Convention, 1930 (No. 29)
P029 - Protocol of 2014 to the Forced Labour Convention, 1930
C105 - Abolition of Forced Labour Convention, 1957 (No. 105)

There are organisations and standard providers who audit and certify compliance in these areas, and value chain participants should ensure that their suppliers and customers are acting in accordance with the expectations of international conventions and local / national legislation as applicable. Section 2 of this chapter contains more information on providers of social auditing standards.

A11 Labour risks

(Fair Wages, Hours & Representation, Gender Equality, Discrimination and Harassment, Worker Safety


Labour (social) risks for workers can be prevalent across the value chain to varying degrees and include unfair treatment around pay, working conditions, equality, harassment, unsafe practices and representation. The leather sector is largely associated with low-paid, unskilled labour, and the risks of social abuse through unfair pay and lack of equal opportunities are still prevalent in some countries. Discrimination against women in the

form of lack of equal pay and opportunity are also high-risk issues. The employment of illegal workers can often be coupled with other unfair practices such as unsafe living conditions, wages below the legal or living standard and loss of freedom of movement through control of passports.

These risks are recognised within the following ILO Conventions:

- C087 - Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)
- C098 - Right to Organise and Collective Bargaining Convention, 1949 (No. 98)
- C100 - Equal Remuneration Convention, 1951 (No. 100)
- C111 - Discrimination (Employment and Occupation) Convention, 1958 (No. 111)

It is important to recognise that, as a result of varying local / national legislation around fair labour, it is not appropriate to use one set of criteria for evaluation in all processes or geographic regions. The organisations and standard providers who audit and certify compliance in these areas will make determinations based on the individual facilities’ local and legislative norms, so one report may not be the same as another. Section 2 of this chapter contains more information on providers of social auditing standards.

A12 Solid production waste

The production of leather results in the creation of waste products such as trimmings, fleshings, splits and shavings. In addition, there is process waste in the form of sludge which is the result of the removal of solids during wastewater treatment.

There are many techniques that can be adopted to minimise waste, some of which have the added benefit of reducing the amount of chemicals used. In addition, some waste products can be recycled for use by other industries. For example, by carrying out the trimming of raw hides/skins before the first tanning process, less material needs to be treated with chemicals and this also avoids unnecessary water consumption. In addition, those trimmings can then be sent for rendering or for gelatine manufacturer.

Leather waste, post-process, can also be recycled into “bonded” leather (or reconstituted leather) – where leather trimmings and shavings are mixed with binding materials such as polyurethane and adhesives to produce blended material.

For waste that is not recycled or repurposed, it is important that safe removal and disposal is carried out, as the waste will contain chemicals that could be detrimental to the environment. The majority of countries around the world require legal permits for disposing of chemical wastes.

A13 Water pollution and wastewater management

For the purposes of this chapter wastewater / effluent is water that has been used in a production process and is then either (a) discharged directly into the environment; (b) sent to a treatment plant before discharge into the environment or (c) sent to a treatment plant before being recycled and used again in production.

The risk of pollution through wastewater is high within the leather value chain as many of the processes use large volumes of water along with chemicals which, if left untreated, can pose significant health risks. Much
research and innovation has taken place aimed at minimising the use of water, eliminating the use of hazardous chemicals and improving production methods. Nonetheless, there will always be a resulting wastewater of some volume and type that will be discharged from a tannery. Most tannery regions have a Common or Municipal Effluent Treatment Plant (CETP or METP), and some tanneries will have their own effluent treatment plants (ETPs) within their facilities. The purpose of these treatment plants is to clean the pollutants from the water to enable it to be either re-used or discharged safely into rivers and other waterways.

UNIDO has been instrumental in designing and implementing more than 250 CETPs in high-risk areas to support effluent treatment in the leather industry and has also created e-learning training tools to help tanneries understand the need for treating tannery effluent.47

A14 Water use

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<thead>
<tr>
<th>Related Value Chain Business Process Descriptions</th>
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</table>

A natural resource, water is essential for life. Responsible consumption of water is a key priority for ensuring that an adequate, safe, clean supply is available for health, the environment and industry. Finding new and innovative ways to reduce pollution loads in industrial wastewater, improving the cleaning and treatment of wastewater to enable more recycling and reducing the amount of water used are necessary for future social and economic development within a more sustainable model.

According to UN-Water,48 globally, it is estimated that over 80 per cent of wastewater is released into the environment without adequate treatment.

The leather value chain uses water at many stages of production and the amount used depends upon the type of tanning method adopted. For many years, leather technologists and experts have looked at ways to minimise the amount of water used, while at the same time finding better methods of treatment and recycling. There are pilot studies taking place to assess the impact on leather quality of a tanning system which uses the same water over and over again. Early indications are that this has no detrimental effect on the leather and so this could prove to be a model for the future.

Many of the sustainability risks within leather manufacturing are interlinked. For example, if you reduce the amount of water used, you can reduce the amount of chemicals that need to be added and this, in turn, will reduce the amount of residual chemicals to be treated. The leather industry is constantly working on new ways to enable this.

The Framework for Sustainable Leather Manufacturing, 2nd Edition49 published by UNIDO on their Leather panel, contains a section on Water Management.

2.2 Organisations that support the prevention and mitigation of risk in the leather industry

The intergovernmental organisations, not-for-profit and private companies described below are indicative of the range of resources available within the leather value chain to provide solutions and assurance around the risks identified in section 1 of this chapter. There are no global programmes that address all of the risk areas in the industry, to multiply resource organisations are likely to be involved in any value chain.

This is not an exhaustive list nor is it intended to be a recommendation but rather it is a recognition of widely established organisations. In addition, these programmes vary in their focus and content, so no two programmes can be considered as equivalents. The choice of programme used will depend on the customer

47 UNIDO Leather Panel: Introduction to the Treatment of Tannery Effluents https://leatherpanel.org/content/introduction-treatment-tannery-effluents-0.
48 https://www.unwater.org/.
and their needs, including the sourcing region and corporate policies. Nonetheless, there are some overlaps between programmes and there are organisations who can provide a platform where multiple programmes are compared and recognised, such as the Social Labour Convergence Project (SLCP).\(^{50}\)

**Intergovernmental organisations**

**B1**  
**CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora)**

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<tr>
<td>Geographic Spread</td>
<td>Global</td>
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<tr>
<td>Certifications / Conventions</td>
<td>Convention on International Trade in Endangered Species of Wild Fauna and Flora</td>
</tr>
</tbody>
</table>

**Scope**

CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival.

CITES is an international agreement to which States and regional economic integration organizations adhere voluntarily. States that have agreed to be bound by the Convention (‘joined’ CITES) are known as Parties. Although CITES is legally binding on the Parties – in other words they have to implement the Convention – it does not take the place of national laws. Rather it provides a framework to be respected by each Party, which has to adopt its own domestic legislation to ensure that CITES is implemented at the national level.

For many years CITES has been among the conservation agreements with the largest membership, with now 183 Parties.

**Website**

https://www.cites.org/eng

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**B2**  
**Food and Agriculture Organisation of the United Nations (FAO)**

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<td>Geographic Spread</td>
<td>Global</td>
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<tr>
<td>Certifications / Conventions</td>
<td>Sustainable Forest Management Toolbox</td>
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</table>

**Scope**

FAO manages the Sustainable Forest Management (SFM) Toolbox, a comprehensive online technical package of tools and examples to facilitate and guide the implementation of SFM in various contexts. The Toolbox makes the wide body of collective knowledge and experience about SFM more accessible to forest managers and other stakeholders, thereby supporting SFM implementation on the ground.

**Website**


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\(^{50}\) Social Labour Convergence Programme (SLCP) [https://slconvergence.org/](https://slconvergence.org/)
## B3 International Labour Organization (ILO)

| Geographic Spread | Global |
| Scope | The ILO brings together governments, employers and workers from 187 UN member States to set labour standards, develop policies and devise programmes promoting decent work for all women and men. The unique tripartite structure of the ILO gives an equal voice to workers, employers and governments to ensure that the views of the social partners are closely reflected in labour standards and in shaping policies and programmes. The main aims of the ILO are to promote rights at work, encourage decent employment opportunities, enhance social protection and strengthen dialogue on work-related issues. |

### NGO and private organisations / associations

#### B4 AGW (A Greener World)

| Related Sustainability Risks | A2. Animal Welfare |
| Geographic Spread | United States of America |
| Certifications / Conventions | Animal Welfare Approved, Certified Grass-fed, Certified Non-GMO, Certified Organic, Salmon Welfare Certified, Certified Regenerative |
| Scope | AGW is an independent, non-profit certifier, and supports working farmers and ranchers with third-party certification, realistic production guidance and marketing support for their AGW-certified products. |
| Website | [https://agreenerworld.org/certifications/](https://agreenerworld.org/certifications/) |

#### B5 Assurewel

| Related Sustainability Risks | A2. Animal Welfare |
| Geographic Spread | Global |
Certifications / Conventions

Scope
Improving farm animal welfare through Welfare Outcome Assessment. AssureWel International is an International group of Farm Assurance Schemes and associated organisations that have come together to share common goals and aspirations with relation to the use of Welfare Outcome Assessment. It is a non-competitive, inclusive and collaborative group, that focuses on certification schemes and programmes with the main emphasis being to influence one another, business to business, plus inform NGOs and Government.

Website
http://www.assurewel.org/

B6  CSCB (The Brazilian Leather Certification of Sustainability)

| Geographic Spread | Brazil |
| Certifications / Conventions | CSCB Certification |
| Scope | The Brazilian Leather Certification of Sustainability (CSCB) applies the tripod sustainability concept in which a tanning industry's results are considered in economic, environmental and social terms. It understands sustainable tanneries to be those that develop their activities with economic results, seek to reduce the inherent environmental impact of activities while providing better working conditions for their employees, and respect for the community in which they operate. Supported by the Brazilian Leather Project — an initiative of the Centre for the Brazilian Tanning Industry (CICB) and the Brazilian Trade and Investment Promotion Agency (Apex-Brasil) to encourage the participation of Brazil’s leathers in foreign markets. |
| Website | https://cicb.org.br/cscb/en |

B7  Ethical Trading Initiative (ETI)

| Geographic Spread | Global |
| Certifications / Conventions | ETI Base Code |
| Scope | ETI defines best practice in ethical trade. All corporate members of ETI agree to adopt the ETI Base Code of labour practice, which is based on the standards of the International Labour Organisation (ILO). ETI works out the most effective steps companies can take to implement the Base Code in their supply chains. Their |
projects and working groups develop and try out new ideas, often piloting these approaches on the ground in sourcing countries. By taking part in these groups, as well as in roundtable discussions, members collectively establish good practice in ethical trade. ETI then develops training and resources to capture this learning, providing practical tools to help companies to put their ethical trade policies into effect.

Website  https://www.ethicaltrade.org/

### B8  FSC (Forest Stewardship Council)

<table>
<thead>
<tr>
<th>Related Value Chain Business Process Descriptions</th>
<th>BPD1a. Farming Whole Life,  BPD1b. Farming Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geographic Spread</td>
<td>Global</td>
</tr>
<tr>
<td>Certifications / Conventions</td>
<td>Forest Management Certification, Chain of Custody Certification</td>
</tr>
<tr>
<td>Scope</td>
<td>FSC have 25 years of experience in sustainable forest management. They use their expertise to promote the responsible management of the world’s forests, bringing together experts from the environmental, economic and social spheres. There are ten principles that any forest operation must adhere to before it can receive FSC forest management certification. These principles cover a broad range of issues, from maintaining high conservation values to community relations and workers’ rights, as well as monitoring the environmental and social impacts of the forest management. FSC also provides a number of criteria relating to each principle to provide practical ways of working out whether they are being followed.</td>
</tr>
<tr>
<td>Website</td>
<td><a href="https://www.fsc.org/en">https://www.fsc.org/en</a></td>
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### B9  ICEC (Quality Certification Institute for the Tanning Industry)

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<tbody>
<tr>
<td>Geographic Spread</td>
<td>Italy</td>
</tr>
<tr>
<td>Certifications / Conventions</td>
<td>ISO14001, ISO45001, OHSAS 18001, ISO 9001, numerous ICEC Certifications for Chemical Management, Traceability, Made in Italy, ZDHC compliance, etc.</td>
</tr>
<tr>
<td>Scope</td>
<td>ICEC – the Quality Certification Institute for the Leather Area has been operating since 1994. It is promoted by the Italian tanneries and has among its members the national associations of leather goods, footwear, accessories and components, furriers, as well as CNR, ENEA, AICQ, SSIP and the Ministry of Economic Development. The leather sector with ICEC has also become a leader in certification. ICEC is ACCREDIA accredited for the quality management system (ISO 9001), environment (ISO 14001), EMAS, health and safety (OHSAS 18001),</td>
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<tr>
<td>Geographic Spread</td>
<td>Global</td>
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<tr>
<td>Certifications / Conventions</td>
<td>Environmental Audit Protocol, Chemical Management Module, Trader Assessment Protocol, Subcontractor Audit Protocol, Commissioning Manufacturer Audit Protocol</td>
</tr>
<tr>
<td>Scope</td>
<td>Leather Working Group is an international, not-for-profit membership organisation. Since 2005, LWG has identified environmental best practices in the industry and provided guidelines for continual improvement. They offer a suite of auditing tools to assess the environmental performance of leather manufacturing facilities – and certify those that meet their standards.</td>
</tr>
<tr>
<td>Website</td>
<td><a href="https://www.leatherworkinggroup.com/">https://www.leatherworkinggroup.com/</a></td>
</tr>
</tbody>
</table>

**B10  Leather Working Group (LWG)**

### Related Value Chain Business Process Descriptions
- BPD4. Raw to Tanned Process
- BPD5. Splitting
- BPD6. Retanning
- BPD7. Dyeing
- BPD8. Drying and Finishing

### Related Sustainability Risks
- A1. Air Pollution
- A4. Hazardous Chemicals & Chemical Management
- A5. Chemicals: Use of Salt in Preservation
- A6. Deforestation
- A7. Energy Consumption
- A12. Solid Production Waste
- A13. Water Pollution and Wastewater Management
- A14. Water Use

### Geographic Spread
- Global

### Certifications / Conventions
- Environmental Audit Protocol
- Chemical Management Module
- Trader Assessment Protocol
- Subcontractor Audit Protocol
- Commissioning Manufacturer Audit Protocol

### Scope
Leather Working Group is an international, not-for-profit membership organisation. Since 2005, LWG has identified environmental best practices in the industry and provided guidelines for continual improvement. They offer a suite of auditing tools to assess the environmental performance of leather manufacturing facilities – and certify those that meet their standards.

### Website
- [https://www.leatherworkinggroup.com/](https://www.leatherworkinggroup.com/)

**B11  Oeko-Tex**

### Related Value Chain Business Process Descriptions
- BPD4. Raw to Tanned Process
- BPD5. Splitting
- BPD6. Retanning
- BPD7. Dyeing
- BPD8. Drying and Finishing
- BPD9. Product Assembly

### Related Sustainability Risks
- A1. Air Pollution
- A4. Hazardous Chemicals & Chemical Management
- A5. Chemicals: Use of Salt in Preservation
- A6. Deforestation
- A7. Energy Consumption
- A9. Health & Safety, including Personal Protective Equipment (PPE)
- A10. Human Rights
- A11. Labour Risks
- A12. Solid Production Waste
- A13. Water Pollution and Wastewater Management
- A14. Water Use

### Geographic Spread
- Global

### Certifications / Conventions
- Leather Standard
- STeP
- Made in Green
- Standard 100
- Detox to Zero
- Eco Passport

### Scope
OEKO-TEX® consists of 18 independent research and test institutes in the field of textile and leather ecology in Europe and Japan with contact offices in more than 60 countries. The partner institutes have joint responsibility for the development of test methods and limit values which form the basis for the standards. The independent OEKO-TEX® partner institutes are entitled to conduct appropriate laboratory tests or company audits in accordance with worldwide standardised guidelines.

### Website
### B12 Organic Soil Association

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Geographic Spread</td>
<td>United Kingdom &amp; Europe</td>
</tr>
<tr>
<td>Certifications / Conventions</td>
<td>Organic Farming Certification, FSC Certification, PEFC Certification</td>
</tr>
</tbody>
</table>

**Scope**

The Soil Association is a membership charity campaigning for healthy, humane and sustainable food, farming and land use. Soil Association Certification Limited is the United Kingdom largest organic certification body. The Charity helped to establish and has ongoing involvement in the Soil Association Land Trust. The Land Trust is a charity in its own right, established to acquire and maintain farmland sustainably and to connect the public with land stewardship.

**Website**


### B13 PEFC (Programme for the Endorsement of Forest Certification)

<table>
<thead>
<tr>
<th>Related Value Chain Business Process Descriptions</th>
<th>BPD1a. Farming Whole Life, BPD1b. Farming Industrial</th>
</tr>
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<tbody>
<tr>
<td>Geographic Spread</td>
<td>Global</td>
</tr>
<tr>
<td>Certifications / Conventions</td>
<td>Sustainable Forest Management Certification, Group Forest Management Certification, Standard Setting, Chain of Custody Certification</td>
</tr>
</tbody>
</table>

**Scope**

As an umbrella organization, PEFC endorses national forest certification systems that have been developed through multi-stakeholder processes and tailored to local priorities and conditions. PEFC work to protect forests by promoting sustainable forest management through certification.

**Website**

https://www.pefc.org/what-we-do

### B14 Progressive Beef

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<tr>
<td>Related Sustainability Risks</td>
<td>A2. Animal Welfare</td>
</tr>
<tr>
<td>Geographic Spread</td>
<td>United States of America</td>
</tr>
<tr>
<td>Certifications / Conventions</td>
<td>Verified Cattle Quality Management System</td>
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</tbody>
</table>

**Scope**

The Progressive Beef programme is a verified cattle quality management system that provides transparency in how cattle are raised including the areas of Animal Welfare, Food Safety and Sustainability. The Progressive Beef programme is designed to create a culture of excellence through teamwork and transparency. The program combines internal and third-party audits with Progressive Beef’s proprietary mobile app to evaluate how well production practices comply with Progressive Beef daily standards.

**Website**

https://www.progressivebeef.com/
### B15  QIMA

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<tr>
<td>Related Sustainability Risks</td>
<td>A2. Animal Welfare</td>
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<tr>
<td>Geographic Spread</td>
<td>Global</td>
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<tr>
<td>Certifications / Conventions</td>
<td>Animal Welfare Certification</td>
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</table>

**Scope**

QIMA is a leading provider of supply chain compliance solutions, that partners with brands, retailers and importers to secure, manage and optimize their global supply network. QIMA has on-the-ground presence in 85 countries, combining industry-leading experts for onsite inspections, supplier audits and lab testing with a digital platform that brings accuracy, transparency and intelligence for quality and compliance data.

**Website**

[https://www.qima.com/who-we-are](https://www.qima.com/who-we-are)

### B16  Red Tractor

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<tr>
<td>Related Sustainability Risks</td>
<td>A2. Animal Welfare</td>
</tr>
<tr>
<td>Geographic Spread</td>
<td>Global</td>
</tr>
<tr>
<td>Certifications / Conventions</td>
<td>Red Tractor Certified Standards (Beef &amp; Lamb Standards)</td>
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</tbody>
</table>

**Scope**

Red Tractor are champions of British food, farming and consumer safety. They are the UK largest food standards scheme. They provide links between farming, processing, packing and distribution, with 46,000 British farmers and major supermarkets working to their world leading standards. Their food is traceable, safe and farmed with care because Red Tractor inspectors check every step of the food journey from farm to pack.

**Website**

[https://redtractor.org.uk/](https://redtractor.org.uk/)

### B17  RSPCA (Royal Society for the Prevention of Cruelty to Animals)

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<tbody>
<tr>
<td>Related Sustainability Risks</td>
<td>A2. Animal Welfare</td>
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<tr>
<td>Geographic Spread</td>
<td>United Kingdom &amp; International</td>
</tr>
<tr>
<td>Certifications / Conventions</td>
<td>RSPCA Assured</td>
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</table>

**Scope**

International Work – Animal and human welfare are increasingly connected worldwide, through issues such as food quality and safety, public health, sustainable agriculture and the environment. RSPCA share their expertise and experience, across Europe, Africa and Asia. In some countries RSPCA International is the only international animal welfare organisation present.
Work ranges from promoting the setting of standards for farm assurance and food labelling schemes like RSPCA Assured, to advising on improving legislation and implementing World Organisation for Animal Health (OIE) guidelines. Their aim is to improve farm animal welfare at all stages of the animals' lives - on farm, during transport through to slaughter.

Website  
https://www.rspca.org.uk/whatwedo/endcruelty/international

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<tr>
<th>B18 Sedex</th>
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<tbody>
<tr>
<td><strong>Related Value Chain Business Process Descriptions</strong></td>
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<td><strong>Related Sustainability Risks</strong></td>
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<td><strong>Geographic Spread</strong></td>
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<td>Global</td>
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<tr>
<td><strong>Certifications / Conventions</strong></td>
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<tr>
<td>SMETA Audit</td>
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</table>

| Scope |
| Sedex is an ethical trade membership organisation, working with businesses to improve working conditions in global supply chains. They provide an online platform, tools and services to help businesses operate responsibly and sustainably, protect workers and source ethically. Using Sedex enables businesses to work together to better manage their social and environmental performance and improve working conditions throughout the supply chain. Over 60,000 member organisations from over 180 countries use the Sedex platform to exchange data, manage business risk, meet compliance and drive positive impact. |
| Website  
https://www.sedex.com/ |

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<th>B19 SGS</th>
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<tbody>
<tr>
<td><strong>Related Value Chain Business Process Descriptions</strong></td>
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<tr>
<td><strong>Related Sustainability Risks</strong></td>
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<tr>
<td><strong>Geographic Spread</strong></td>
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<tr>
<td>Global</td>
</tr>
<tr>
<td><strong>Certifications / Conventions</strong></td>
</tr>
</tbody>
</table>
| SA8000 Standard for Social Accountability  
FAMI-QS (Quality & Safety System for Specialty Feed Ingredients).  
EFISC (The European code of good practice for the industrial manufacturing of safe feed materials.)  
GMP+ (Integrating ISO quality management requirements, HACCP and other elements. A GMP+ certificate provides additional guarantee for all stakeholders in the international feed industry).  
ISO14001, ISO45001, ISO5001, FSC Chain of Custody (CoC), FSC Forest Management |

| Website  
https://www.sedex.com/ |
### Scope

SGS is an inspection, verification, testing and certification company. With more than 89,000 employees, they operate a network of more than 2,600 offices and laboratories around the world.

### Website

https://www.sgs.co.uk/

#### B20  Social Accountability International (SAI)

| Geographic Spread | Global |
| Certifications / Conventions | SA8000 Standard for Social Accountability Social Fingerprint |

Founded in 1997, Social Accountability International (SAI) is a global non-governmental organisation advancing human rights at work. SAI’s vision is of decent work everywhere - sustained by an understanding that socially responsible workplaces benefit business while securing fundamental human rights. SAI empowers workers and managers at all levels of businesses and supply chains, using its multi-industry SA8000® Standard, as well as Social Fingerprint®, TenSquared, and other training and capacity – building. SAI works together with a diverse group of stakeholders, including brands, suppliers, governments, trade unions, non-profits and academia.

### Website

https://sa-intl.org/

#### B21  Sustainable Apparel Coalition (SAC)

| Geographic Spread | Global |
| Certifications / Conventions | Higg Product Tools, Higg Facility Tools, Higg Brand & Retail Tool |

Scope

The Sustainable Apparel Coalition is an apparel, footwear, and textile industry alliance for sustainable production. The Coalition develops the Higg Index, a suite of tools that standardizes value chain sustainability measurement for all industry participants. These tools measure environmental and social labour impacts across the value chain. With this data, the industry can identify hotspots, continuously improve...
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<tr>
<th>B22</th>
<th>Textile Exchange</th>
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<tbody>
<tr>
<td><strong>Geographic Spread</strong></td>
<td>Global</td>
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<tr>
<td><strong>Certifications / Conventions</strong></td>
<td>A benchmarking programme, coupled with impact incentives and traceability requirements that recognises the certifications of other programmes that meet the benchmark requirements.</td>
</tr>
<tr>
<td><strong>Scope</strong></td>
<td>Textile Exchange is a global non-profit that creates leaders in the preferred fibre and materials industry. They develop, manage, and promote a suite of industry standards, as well as collect and publish critical industry data and insights that enable brands and retailers to measure, manage, and track their use of preferred fibre and materials.</td>
</tr>
<tr>
<td><strong>Website</strong></td>
<td><a href="https://textileexchange.org/">https://textileexchange.org/</a></td>
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<tbody>
<tr>
<td><strong>Related Value Chain Business Process Descriptions</strong></td>
<td>BPD1a. Farming Whole Life, BPD1b. Farming Industrial</td>
</tr>
<tr>
<td><strong>Related Sustainability Risks</strong></td>
<td>A6. Deforestation</td>
</tr>
<tr>
<td><strong>Geographic Spread</strong></td>
<td>Brazil</td>
</tr>
<tr>
<td><strong>Certifications / Conventions</strong></td>
<td>Visipec Traceability Tool</td>
</tr>
<tr>
<td><strong>Scope</strong></td>
<td>Visipec is a new add-on traceability tool that works alongside the existing monitoring systems used by Brazilian meatpackers to provide the cattle sector with enhanced supply chain visibility and more effective deforestation monitoring. It integrates information from public databases and serves to complement the existing systems, by providing regularly updated data in a seamless tool, to help reduce exposure to deforestation risks that are currently present in the early stages of the supply chain.</td>
</tr>
<tr>
<td><strong>Website</strong></td>
<td><a href="https://www.visipec.com/">https://www.visipec.com/</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B24</th>
<th>ZDHC (Zero Discharge of Hazardous Chemicals)</th>
</tr>
</thead>
<tbody>
<tr>
<td>----------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Geographic Spread</td>
<td>Global</td>
</tr>
<tr>
<td>Certifications / Conventions</td>
<td>Manufacturing Restricted Substances List (MRSL), Chemical Management System, Wastewater Guidelines</td>
</tr>
<tr>
<td>Scope</td>
<td>ZDHC wants to protect the planet by reducing industry's chemical footprint. That means working hand-in-hand with the entire value chain. They collaborate with global brands, chemical suppliers, manufacturers and other organisations that share their vision to create a new way forward. ZDHC believe in a world where things are made without harmful chemicals. Consumer demands can be met without depleting natural resources.</td>
</tr>
<tr>
<td>Website</td>
<td><a href="https://www.roadmaptozero.com/">https://www.roadmaptozero.com/</a></td>
</tr>
</tbody>
</table>

**B25 DNV GL (Det Norske Veritas)**
(Not specifically leather related but included as they have been involved in auditing of deforestation systems in Brazil through Greenpeace)

<table>
<thead>
<tr>
<th>Related Value Chain Business Process Descriptions</th>
<th>BPD1a. Farming Whole Life, BPD1b. Farming Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Related Sustainability Risks</td>
<td>A2. Animal Welfare</td>
</tr>
<tr>
<td>Geographic Spread</td>
<td>Global</td>
</tr>
<tr>
<td>Certifications / Conventions</td>
<td>SA8000, SMETA (Sedex Members Ethical Trade Audit)</td>
</tr>
<tr>
<td>Scope</td>
<td>DNV GL believes that product sustainability cannot be decoupled from its production and distribution chain, and consequently has studied an innovative approach to enhance the value of supply chain sustainability programs implemented by companies. The Sustainable Procurement Process (SPP) reviews the integration of principles of Corporate Social Responsibility and sustainable development in the procurement processes and practices; rather than considering only compliance to minimum standards, it focuses instead on the proactive promotion of sustainability objectives among suppliers and on the creation of value for all actors involved. The Sustainable Procurement Process (SPP), inspired by the international standard ISO 20400, evaluates the consistency of sustainability corporate policies with procurement strategy, processes and objectives.</td>
</tr>
<tr>
<td>Website</td>
<td><a href="https://www.dnvgl.com/">https://www.dnvgl.com/</a></td>
</tr>
</tbody>
</table>

### 2.3. Examples of traceability identifiers and tools

There are a number of solutions that can be adopted to support traceability and transparency and some examples are detailed below. These are intended to be examples of some of what is currently available within the garment and footwear sectors and do not constitute recommendations:

#### 2.3.1 CTC laser technology

This solution uses laser technology to apply an identifier directly onto the hide that maintains the original identifier from the animal at the farm through to the finished leather material. It works through:

1) Transfer of the animal identification number (from ear tag or similar) onto the hide at the point of slaughter. This animal ID number can be read by an automated solution and then transferred onto a label that accompanies the hide through from the slaughterhouse to the tannery.
The identifier on the label is then transferred onto the hide / skin by a high-power laser which leaves a mark that remains present throughout the thickness of the hide / skin so even if the material is split it will retain the mark.

At each stage of the leather process, the laser identifier can be read for tracking and monitoring which assists with problem solving throughout the manufacture. It also makes it possible for any subcontracted operations or changes of custodianship to be tracked through the reading of the identifier and logging into an IT system to maintain the chain of custody.

Figure 21
CTC laser technology

Restrictions: This technology does not extend the identification past the point of finished leather and the laser mark will ultimately be trimmed away before the product is manufactured. It also does not provide a solution for farming in regions where identification of cattle does not routinely take place, in those cases the scope is limited to the slaughterhouse through to finished leather production.

2.3.2 Leather ID

Leather ID is an off-the-shelf software system that customers who are brand owners can use to evaluate the lifecycle of materials through an interconnected upload of data.

A user accesses the Leather ID platform and enters a product code / order number which will open up all data connected with that material code. QR technology is adopted to produce reports that show the journey the material has taken including any certifications, test reports and shipping information.

The range of information that can be collected within the solution includes details about the hide / skin and its origin, substances used in the leather production process and the steps adopted. This information can assist brand owners and retailers if problems arise with particular batches of leather and helps to identify problem sources.
Restrictions: This solution is only available from the slaughterhouse to the finished leather, and it does not provide any way to extend access to its sustainability information through to the post-consumption phase. This solution does not include any embedded identifier on the material that can be carried through to consumer level.

2.3.3 Visipec

The Visipec solution is an add-on traceability tool that works alongside existing monitoring systems that are already being used by Brazilian meatpackers to provide the cattle sector with enhanced supply-chain visibility and more effective deforestation monitoring.

The solution integrates information from public data sets, which were once isolated and disconnected from each other, into a seamless tool that links information about direct and indirect cattle suppliers together at a large scale within the Brazilian Amazon to significantly improve the daily decision-making process for cattle purchasers. The tool helps to reduce exposure to deforestation risks that are currently present in the early stages of the upstream value chain.

The tool was developed with the National Wildlife Federation and is not open to everyone. It is specifically designed for use by meatpackers in Brazil and is free to use.
Restrictions: This solution only covers livestock farming origin within a specific geographic risk area in the Brazilian Amazon. It is only available to meatpackers and only on approval through the National Wildlife Federation.

2.3.4 U-NICA repTRACE® Reptile Recognition

The repTRACE® solution provides an effective identification of reptile skins to secure a transparent and verifiable value chain from the production of skins up to the final product in real time. By taking a “fingerprint” style photographic reference of the skin, each one can be tracked right through to consumption and even through to post-consumption. It works because no two skins are identical and the clarity of the reproduction through repTrace® makes it a reliable method for protecting authenticity of reptile skins.

Restrictions: This technology works very well for reptiles (for example Crocodile or Alligator but is not effective with bovine, porcine or ovine (cattle, pig or sheep) as there is not enough identifiable characteristics on the hides/skins to be accurate.

2.3.5 DNA Identification

The application of DNA identification markers onto leather is one tool that can be adopted to work alongside other solutions to preserve information about the sustainability credentials and origin of the leather in the
finished product. DNA markers can be applied to the leather during the processing stage and can then be tested at the consumer level.

**Restrictions:** The application of a marker only verifies the location that the marker was applied but does not verify the onward production processes used on the material unless it is used as an ID in a traceability and transparency system which would link it to those onward processes. DNA markers applied at the field level need to be reapplied after the first transformation stage of tanning.

### 2.3.6 Embedded Physical Markers

There are also physical markers (ceramics, powders, etc), that can be added to tanning solutions or applied directly to the skins of livestock in the field. Like DNA markers, these embed the identifier invisibly within the material. Some of these solutions work with easy-to-use handheld detectors for in-field use to demonstrate the security or the authenticity of material.

**Restrictions:** The application of a marker only verifies the location that the marker was applied but does not verify the onward production processes used on the material unless it is used as an ID in a traceability and transparency system which would link it to those onward processes. Markers applied at the farm or field level may need to be reapplied after the first transformation stage of tanning.

### 3. Implementing traceability and transparency – An in-depth look at the leather value chain

This chapter seeks to support implementation of traceability and transparency systems, with a focus on the leather value chain. In order to do this it provides three types of information.

1) **Generic pathways:** the typical path that a leather value chain process will need to follow inside of generic traceability and transparency operational processes. These generic processes were covered in detail in Part I, chapter 5. In concrete terms, this is done by showing a “green path” for leather processes through the generic traceability and transparency activity diagrams for

   - Process 3  Process asset at traceability entry point
   - Process 4  Implement traceability and transparency at transformation processing points
   - Process 5  Implement traceability with a product guardian value chain partner and at the traceability exit point
   - Process 8  Provide sustainability claim information to transformation value chain partners who recycle either used product or production process waste.

   These activity diagrams can be found in chapter 3, section 2 of Part II.

2) **Leather value chain activities and traceability data points.** This information is shown in activity diagrams (ADs) which illustrate, in a graphic format, all of the activities in a process and their sequence.

   Then, on top of these activity diagrams are marked possible locations for the data collection activities (data points) needed for traceability and transparency. These are based on the generic activity diagrams for traceability and transparency and are marked with coloured comment “bubbles” that show the corresponding number and name of the traceability activity. We call this process “overlaying” the traceability activity diagram on top of specific industry value-chain activity diagrams (in this case for the leather industry).

   These should help implementors identify where, in an existing value chain, they will need to establish data points for either collecting existing data or implementing the collection of new data in support of traceability and transparency.

   Cross references have been placed at the top of each leather value chain activity diagram to the relevant “green path traceability activity diagram” and if you click on the cross reference when looking at an electronic version of this document, the cross reference will link you to the relevant “green path”
traceability and transparency activity diagram. At the same time, from a practical standpoint it is recommended to either

- Use two screens with one showing the “green-path version” of the generic traceability and transparency activity diagrams and the other the relevant leather value chain activity diagram, or else to
- Print out the “green-path version” of the generic traceability and transparency activity diagrams and to use those as a reference when studying the leather value chain activity diagrams on a screen.

These activity diagrams and their accompanying BPDs as described below, are included in Section 2 of this chapter.

3) Additional information for identifying both risks and existing information that might be used for implementing traceability and transparency. This additional information is in business process descriptions (BPDs) that describe each activity in an activity diagram. The BPDs contain more detail about the information exchanged or collected during each activity and each one ends in a detailed list of possible risks that may be encountered in that process. These risks are cross referenced to the earlier risk descriptions and when looking at this document in an electronic version one can click on a risk to automatically be taken to the text describing it. A graphic guide to these risks can be seen in figure 25.

Figure 25
Sustainability risks in the leather value chain

While it is clear that each value chain is unique, we hope that this process will provide implementors with an approximate guide to data collection needs.

Implementors should be able to use these marked leather value-chain activity diagrams to identify where, in their own processes, they need to record traceability and transparency data, where the data already exists and where there are gaps that need to be filled – thus supporting the development of their own, unique, implementation strategies.
3.1  **Generic traceability pathways**

**How to Read Activity Diagrams**: Activity diagrams are a graphic representation of a story that consists of sequential and parallel events. The easiest way to read them is to use your finger to trace the events from the black dot at the beginning down to the white dot with an X at the end, following the arrows and reading each box along the way. The totality of the texts in the boxes are most of the story and the arrows add information that, if written, would consist of many words like “after”, “before”, “if yes then”, “if not then”, “or”, etc. and these can be difficult to follow when used many times in a text. Beyond that, the only two things to remember are that diamonds ask questions that can change the direction of the arrows, and the dark bars always have multiple arrows on one side (either the “in” or “out”) and those multiple arrows represent parallel activities.

In some cases, it may be easier to read a diagram on a computer screen where it can be enlarged in order to improve readability.

3.1.1  **Generic pathway - Traceability entry point processing**

The entry point for traceability (i.e. where traceability starts) can be different according to the design of the value chain and the capabilities of the concerned value-chain partners. Some may start traceability at the farm level, but others may start traceability at the slaughterhouse or even at the first transformation value chain (TVC) partner, i.e. the tannery.

The generic traceability pathway identified in Figure 26 in green, has been overlaid onto the following Activity Diagrams in the next section which have been identified as possible processes for traceability entry points.

<table>
<thead>
<tr>
<th>Process</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Farming of Livestock – Whole Life Farm</td>
</tr>
<tr>
<td>1b</td>
<td>Farming of Livestock – Industrial Farming System*</td>
</tr>
<tr>
<td>2</td>
<td>Slaughterhouse</td>
</tr>
<tr>
<td>3</td>
<td>Hide &amp; Skin Preservation</td>
</tr>
<tr>
<td>4</td>
<td>Raw to Tanned Process</td>
</tr>
</tbody>
</table>

* In Activity Diagram 1b, for Farming of Livestock, there are 3 instances of generic processes 3.1.2, 3.2.2 and 3.4. This is due to the 3 transfers of livestock in the industrial farming system. Each transfer, i.e. from birth farm, to rearing farm to finishing farm, should result in a repeat of the generic processes.

With the exception of processes 1a and 1b, the next Generic Traceability Process, which is for Product Transformations, should also be implemented (overlaid). However, for the sake of simplicity we have not done this. In addition, there are enough examples in processes 5 through 9 as to how the process for product transformations can be overlaid onto leather processes.
Figure 26
Activity Diagram – Data flows at traceability entry point

3. Traceability Entry Point Processing - Generic Traceability and Transparency Process

<table>
<thead>
<tr>
<th>Value-Chain Partner (VCP)</th>
<th>Verification Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.1. Register IDs of inputs (traceable assets)</td>
<td>3.2.1 Verify &quot;state/&quot; of traceable asset</td>
</tr>
<tr>
<td>Register arrival at TVC partner, register unique IDs of traceable assets, and label if needed</td>
<td>Verify state of traceable asset against requirements</td>
</tr>
<tr>
<td>3.1.2 Assign ID to traceable asset</td>
<td>Only done if traceable asset needs to be inspected at entry point.</td>
</tr>
<tr>
<td>3.1. Do traceable assets already have IDs?</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>3.2.2 Verify &quot;state/&quot; of traceable asset</td>
</tr>
<tr>
<td>3.2. Does Verification body need to Verify state of traceable asset?</td>
<td>Verify state of traceable asset against requirements</td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>3.3.2 Can traceable asset status be fixed?</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>3.3.3 Take Remedial Action</td>
</tr>
<tr>
<td>Bring the traceable asset in line with requirements</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>3.3.1 Register status of traceable asset</td>
<td></td>
</tr>
<tr>
<td>Register final status (disposal) of traceable asset</td>
<td></td>
</tr>
<tr>
<td>3.3.2.2 Transfer traceable asset</td>
<td></td>
</tr>
<tr>
<td>Dispose of defective traceable asset that cannot be made to meet requirements</td>
<td></td>
</tr>
<tr>
<td>3.4 Register transfer of traceable asset</td>
<td></td>
</tr>
<tr>
<td>Register the transfer of traceable asset into first transformation or product guardian process</td>
<td></td>
</tr>
<tr>
<td>3.4.3 Transfer traceable asset</td>
<td></td>
</tr>
<tr>
<td>Transfer traceable asset into first transformation or product guardian process</td>
<td></td>
</tr>
</tbody>
</table>
3.1.2 Generic pathway - Traceability entry point processing

Once the traceability process is entered, data recording is required during each of the different transformation processes. For the purposes of this chapter, the traceability entry point is the “raw to tanned leather process” so the continuation with “transformation processes” begins with the next first full process which is “splitting, shaving and sorting”. The generic traceability pathway identified in green in Figure 27 is applicable to the following activity diagrams which are shown with the generic traceability process overlays in section 2 of this chapter:

Process 5 Splitting, Shaving and Sorting
Process 6 Retanning, Fatliquoring and Crust
Process 7 Dyeing, Setting out and Sammying
Process 8 Drying, Conditioning and Finishing
Process 9 Product Assembly, Despatch & Warehousing

In the activity diagrams for the above processes, it is assumed that one facility is carrying out all processes. It should be noted, however, that in some value chains, the traceable asset may be sold in various partly finished states.
Figure 27
Activity Diagram: Generic Traceability at Product Transformation Points
3.1.3 Generic pathway – Traceability with a Product Guardian Value-Chain (PGVC) Partner

If verification of a claim, or other objectives such as fraud prevention, require maintaining “chain of custody” information, then further traceability information must be recorded. In particular, this needs to be done for outputs and final products which are handled by product guardians such as transporters or warehouses. In the cases where chain-of-custody information is not needed (i.e. information about the transporter or warehouser), linkages are preserved when goods are transferred between value-chain processes based on documents such as bills-of-material or other shipping documents which are prepared by the sending value-chain partner and processed by the receiving value-chain partner.

In addition, most implementations will want to follow traceable assets even after they have been assembled into a finished article for sale, which requires recording information at the level of retail stores (which are also product guardians since they do not undertake transformation processes) or of warehouses when sales are direct to consumers. The generic traceability pathway shown in green in Figure 28, is applicable to the activity diagram for process 10, order fulfilment / retail, as shown in section 2 of this chapter.
Figure 28
Activity Diagram: Generic Traceability with a Product Guardian Process
3.1.4 Generic pathway – Traceability information to transformation value-chain partner for recycling

At the end of the first life of a traceable asset, the consumer will decide to either dispose of it to: waste, recycling, repurposing or resale through a charity. Although this is seldom the case now, in the future some of the disposal options may involve onward transfer of sustainability information, particularly if the product is to be recycled or re-purposed.

Figure 29
Activity Diagram – Generic Traceability Post-consumption – Recycling

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1 Decide what information will be given to TVCP-recycler and how</td>
<td>8.2 Go to Process 1 - decide sustainability criteria and verification methods</td>
<td>8.3 Go to Process 2 - implement verification methods</td>
<td>8.4.2 Receive instructions</td>
</tr>
<tr>
<td>8.4.1 Give instructions to TVCP-recyclers on how to retrieve information</td>
<td>8.5.1 Receive order for production waste or end-of-life products</td>
<td>8.5.2 Receive order for production waste or end-of-life products</td>
<td>8.5.3 Obtain value-chain information</td>
</tr>
<tr>
<td>8.5.2 Receive order for production waste or end-of-life products</td>
<td>8.6.1 Send waste or end-of-life products</td>
<td>8.6.2 Send waste or end-of-life products</td>
<td>8.7.3 Formats and sends information</td>
</tr>
<tr>
<td>8.6.1 Send waste or end-of-life products</td>
<td>8.7.1 Requests value-chain info</td>
<td>8.7.2 Obtain value-chain information</td>
<td>8.7.3 Formats and sends information</td>
</tr>
<tr>
<td>8.7.4 Accesses and reads information</td>
<td>8.7.5 Questions</td>
<td>8.7.3 Formats and sends information</td>
<td>8.8.1 Does TVCP-recycler have questions?</td>
</tr>
<tr>
<td>8.8.2 Send question</td>
<td>Yes</td>
<td>Yes</td>
<td>8.8.2 Send question</td>
</tr>
<tr>
<td>8.8.2 Send question</td>
<td>No</td>
<td>No</td>
<td>8.8.2 Send question</td>
</tr>
<tr>
<td>8.8.2 Send question</td>
<td>8.9.1 Does TVCP-recycler have questions?</td>
<td>8.9.2 Send question</td>
<td>8.9.2 Send question</td>
</tr>
</tbody>
</table>
3.2 Leather value chain activities and traceability data points

When considering the activity diagrams and business process descriptions for the leather value chain, it should be noted that, although the process steps in the manufacture of leather are broadly the same whether dealing with livestock hides/skins or exotic skins, not all process steps are followed in every value chain. In addition, some process steps may take place in a different order or more than once before the finished product is manufactured.
Figure 30
Process 1a Farming of livestock – whole life farm [overlay = traceability entry point processing]
### Table 13
**Process 1a (BPD)**

<table>
<thead>
<tr>
<th>Name of process</th>
<th>1a Farming of livestock – whole life farm: birthing and raising of livestock to end of life</th>
</tr>
</thead>
</table>
| **Business process short description** | Leather is manufactured from the hide or skin of an animal. There are various farming models:  
   a) Farms that raise animals from birth to end of life  
   b) Private or family small holdings  
   c) Industrial systems that start with birthing farms, before moving livestock to rearing/raising farms and then moving the livestock to finishing yards (sometimes known as feedlots).  
   d) Exotics systems that combine egg breeders/collectors, hatchling farms and finishing farms  
Process 1a cover the processes for models a. and b. above. Process 1b covers models c. and d. |
| **Process participants** | Farmers, Breeders, Other Suppliers - Farm supplies, Transporter Product Guardians, Slaughterhouses (Abattoirs), Inspectors / Certifiers |
| **Input & criteria to enter/begin the process** | Planning of livestock herd (this could involve liaison with Brands or could be part of the meat & diary industry) |
| **Parallel Processes** | **1a.4 Inspection:** Inspection / Certification of chemical & legislative compliance & processes can take place at the farm at different parts of the process. |

#### Description of Activities
A step-by-step description of what happens in the process. If parallel or overlapping steps much be finished before the next step, the first two digits of the number should be the same

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>Required DOCUMENTS</th>
<th>Required OTHER INFORMATION / communication method</th>
<th>TRACEABILITY Actions &amp; Data required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1a.1 Planning:</strong> Planning of animal herd size (could involve meat &amp; diary or brand)</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
</tbody>
</table>
| **1a.2.1 Feed Order:** Place order with suppliers | Purchase Order to Feed Supplier  
Invoice from Feed Supplier | Any feed requirements? (i.e. no GM or similar)  
Order from farmer: email, mobile phone SMS, WhatsApp | Record of receipt of feed supplies |
| **1a.2.2 Ancillaries Order:** Place order for equipment or other farm supplies | Purchase Order to Feed Supplier  
Invoice from Feed Supplier | Order from farmer: email, mobile phone SMS, WhatsApp | Record of receipt of feed supplies |
<table>
<thead>
<tr>
<th><strong>DESCRIPTION</strong></th>
<th><strong>Required DOCUMENTS</strong></th>
<th><strong>Required OTHER INFORMATION / communication method</strong></th>
<th><strong>TRACEABILITY Actions &amp; Data required</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1a.3 Receive supplies:</strong> Receipt of feed &amp; other farm supplies to stock inventory</td>
<td>Despatch notes confirming goods received</td>
<td>Order confirmation from supplier: email, mobile phone SMS, WhatsApp</td>
<td>Inventory of feed &amp; materials to be registered at the farm.</td>
</tr>
<tr>
<td><strong>1a.4. Inspection:</strong> Inspect / Certify chemical &amp; legislative compliance &amp; processes as requested</td>
<td>Confirmation of inspection visit dates.</td>
<td>Order from brand / farmer / manufacturer: email, mobile phone SMS, WhatsApp</td>
<td>Proof of successful inspection e.g. certification or corrective measures if not successful</td>
</tr>
<tr>
<td><strong>1a.5 Birth of livestock:</strong> Animals are born at the farm or bought as eggs from breeders</td>
<td>Registration of birth? Purchase order for eggs</td>
<td>Electronic registration? Manual record of birth</td>
<td>Ear tag or other form of identification of livestock applied &amp; recorded</td>
</tr>
<tr>
<td><strong>1a.6 Raising of Livestock:</strong> Raising of the animals on the farm</td>
<td>------</td>
<td>Feed requirements Health Issues / Treatment</td>
<td>Maintenance of identification data for livestock inventory.</td>
</tr>
<tr>
<td><strong>1a.7 Sale to slaughterhouse:</strong> Agree sale &amp; price with slaughterhouse</td>
<td>Purchase order from slaughterhouse. Invoice to slaughterhouse</td>
<td>Transfer of ownership paperwork? Email or mobile confirmations from transporter &amp; farmer Bank confirmation to farmer of payment / mobile</td>
<td>Record of identification to be passed forward for change of ownership &amp; end of life records.</td>
</tr>
<tr>
<td><strong>1a.8 Agree Order Confirmation:</strong> Slaughterhouse receives purchase agreement from farm</td>
<td>Purchase agreement Invoice to slaughterhouse</td>
<td>Purchase agreement from farm: email, mobile phone SMS, WhatsApp</td>
<td>Record of transaction including, date of sale, quantity of livestock, type of livestock, identification data (if not on animal), (cost?)</td>
</tr>
<tr>
<td><strong>1a.9 Raise Order Confirmation:</strong> Slaughterhouse send purchase order to the farm</td>
<td>Purchase order</td>
<td>Purchase order from slaughterhouse: email, mobile phone SMS, WhatsApp</td>
<td>Record of transaction including, date of sale, quantity of livestock, type of livestock, (cost?)</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions &amp; Data required</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------</td>
<td>---------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>1a.10 Order Transportation: Farm arranges transportation of livestock to the slaughterhouse</td>
<td>Purchase order</td>
<td>Purchase order from the farm: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity of livestock, type of livestock, (cost?)</td>
</tr>
<tr>
<td>1a.11: Receive Transport Order: Receive &amp; process transportation order &amp; confirm to the farm</td>
<td>Order Confirmation</td>
<td>Order Confirmation from Transportation Product Guardian to the farm: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity of livestock, type of livestock, (cost?)</td>
</tr>
<tr>
<td>1a.12 Collect &amp; Transport animals: Transportation Product Guardian collects animals from the farm &amp; delivers to the slaughterhouse</td>
<td>Invoice to the farm Delivery note to slaughterhouse</td>
<td>Collection / Delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection address, delivery address, date of collection, date of delivery, quantity of livestock, type of livestock</td>
</tr>
</tbody>
</table>

**Output & criteria to exit the business process**

Slaughterhouse is in receipt of fully grown cattle ready for end-of-life process before the hide / skin is separated from the meat & carcass, ready for leather manufacturer (see BPD 2).

**“Common” exceptions/problems**

Identification not always transparent.
Small rural farms may not have identification tools or good monitoring practices
Transportation legislation may differ across countries or states which could impact animal health & welfare

**Circular Economy related observations**

Waste from the food industry can be used as animal feed.
Manure from animals can provide fertiliser (both on and off farms)
Rotation of crops and livestock farming help to preserve biodiversity and health of soil

**Other observations, in particular related to traceability needs for different activities**

Farm Models: There are many different farming models globally, ranging from simple whole life farms as illustrated in this BPD, to industrial systems as outlined in BPD 1b. Additionally there are global variances that must be recognised & in some instances protected within a transparent system, in order to preserve social economies & cultures.

**Related laws, rules, regulations**

Different regulations & laws are applicable in different countries & regions.
<table>
<thead>
<tr>
<th>Sustainability Risks, Criteria and Verification</th>
<th>Sustainability risks (hot spots) within this process</th>
<th>Sustainability criteria and standards to address the risk</th>
<th>Verification methods for criteria and standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainability risks (hot spots) within this process</td>
<td>Sustainability criteria and standards to address the risk</td>
<td>Verification methods for criteria and standards</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>------------------------------------------------------</td>
<td>-----------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Indirect Deforestation:</td>
<td></td>
<td>B25. DNV GL (Det Norske Veritas)</td>
<td></td>
</tr>
<tr>
<td>A7. Energy Consumption</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A8. Greenhouse Gas Emissions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A14. Water Use</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Figure 31
Process 1b Farming of livestock – industrial farming system [overlay = traceability entry point processing]
Table 14
Process 1b (BPD)

<table>
<thead>
<tr>
<th>Name of process</th>
<th>1b. Farming of livestock - industrial farming systems: starting with birthing farms, then moving to raising farms, then finishing farms.</th>
</tr>
</thead>
</table>
| Business process short description | Leather is manufactured from the hide or skin of an animal. There are various farming models:  
  a) Farms that raise animals from birth to end of life  
  b) Private or family small holdings  
  c) Industrial systems that start with birthing farms, before moving livestock to rearing/raising farms and then moving the livestock to finishing yards (sometimes known as feedlots).  
  d) Exotics systems that combine egg breeders/collectors, hatchling farms and finishing farms  
Process 1a cover the processes for models a. and b. above. Process 1b covers models c. and d. |

<table>
<thead>
<tr>
<th>Process participants</th>
<th>Birthing Farms, Rearing Farms, Finishing Farms, Other Suppliers - Farm supplies, Transporter Product Guardians, Slaughterhouses (Abattoirs), Inspectors / Certifiers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input &amp; criteria to enter/begin the process</td>
<td>Planning of livestock herd (this could involve liaison with Brands or could be part of the meat &amp; diary industry)</td>
</tr>
</tbody>
</table>

| Parallel Processes | 1b.4 Inspection: Inspection / Certification of chemical & legislative compliance & processes can take place at the farm at different parts of the process. |

<table>
<thead>
<tr>
<th>Description of Activities</th>
<th>A step-by-step description of what happens in the process. If parallel or overlapping steps much be finished before the next step, the first two digits of the number should be the same</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1b.1 Planning:</strong> Planning of animal herd size (could involve meat &amp; diary or brand)</td>
<td>DESCRIPTION</td>
</tr>
<tr>
<td>999</td>
<td>-------</td>
</tr>
</tbody>
</table>
| **1b.2.1 Feed Order:** Place order with suppliers | Purchase Order to Feed Supplier  
Invoice from Feed Supplier | Any feed requirements? (i.e. no GM or similar)  
Order from farmer: email, mobile phone SMS, WhatsApp | Record of receipt of feed supplies |
| **1b.2.2 Ancillaries Order:** Place order for equipment or other farm supplies | Purchase Order to Feed Supplier  
Invoice from Feed Supplier | Order from farmer: email, mobile phone SMS, WhatsApp | Record of receipt of feed supplies |
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>Required DOCUMENTS</th>
<th>Required OTHER INFORMATION / communication method</th>
<th>TRACEABILITY Actions &amp; Data required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1b.3 Receive supplies:</strong> Receipt of feed &amp; other farm supplies to stock inventory</td>
<td>Despatch notes confirming goods received</td>
<td>Order confirmation from supplier: email, mobile phone SMS, WhatsApp</td>
<td>Inventory of feed &amp; materials to be registered at the farm.</td>
</tr>
<tr>
<td><strong>1b.4. Inspection:</strong> Inspect / Certify chemical &amp; legislative compliance &amp; processes as requested</td>
<td>Confirmation of inspection visit dates.</td>
<td>Order from brand / farmer / manufacturer: email, mobile phone SMS, WhatsApp</td>
<td>Proof of successful inspection e.g. certification or corrective measures if not successful</td>
</tr>
<tr>
<td><strong>1b.5 Birth of livestock:</strong> Animals are born either a part of a full farm system or on a birthing farm</td>
<td>Registration of birth?</td>
<td>Electronic registration? Manual record of birth Feed requirements Health Issues / Treatment</td>
<td>Ear tag or other form of identification of livestock applied &amp; recorded</td>
</tr>
<tr>
<td><strong>1b.6 Sale to Rearing / Raising Farm:</strong> Agree sale &amp; price with rearing / raising farm</td>
<td>Purchase order from rearing / raising farm. Invoice to rearing / raising farm</td>
<td>Transfer of ownership paperwork? Email or mobile confirmations from transporter &amp; farmer Bank confirmation to farmer of payment / mobile</td>
<td>Record of identification to be passed forward &amp; new ownership registered.</td>
</tr>
<tr>
<td><strong>1b.7 Agree Order Confirmation:</strong> Rearing / raising farm receive purchase agreement from birthing farm</td>
<td>Purchase agreement Invoice to raising / rearing farm</td>
<td>Purchase agreement from birthing farm: email, mobile phone SMS, WhatsApp</td>
<td>Record of transaction including, date of sale, quantity of livestock, type of livestock, identification data (if not on animal), (cost?)</td>
</tr>
<tr>
<td><strong>1b.8 Raise Order Confirmation:</strong> Rearing / raising farm send purchase order to the birthing farm</td>
<td>Purchase order</td>
<td>Purchase order from rearing farm: email, mobile phone SMS, WhatsApp</td>
<td>Record of transaction including, date of sale, quantity of livestock, type of livestock, (cost?)</td>
</tr>
<tr>
<td><strong>1b.9 Order Transportation:</strong> Birthing farm arrange transportation of livestock to the rearing farm</td>
<td>Purchase order</td>
<td>Purchase order from birthing farm: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity of livestock, type of livestock, (cost?)</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions &amp; Data required</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------</td>
<td>-----------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td><strong>1b.10: Receive Transport Order:</strong> Receive &amp; process transportation order &amp; confirm to birthing farm</td>
<td>Order Confirmation</td>
<td>Order Confirmation from Transportation Product Guardian to birthing farm: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity of livestock, type of livestock, (cost?)</td>
</tr>
<tr>
<td><strong>1b.11 Collect &amp; Transport animals:</strong> Transportation Product Guardian collects animals from birthing farm &amp; delivers to the rearing / raising farm</td>
<td>Invoice to birthing farm Delivery note to rearing / raising farm</td>
<td>Collection / Delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection address, delivery address, date of collection, date of delivery, quantity of livestock, type of livestock</td>
</tr>
<tr>
<td><strong>1b.12 Rearing / raising of livestock:</strong> Livestock continue to be raised at a Rearing Farm.</td>
<td>Location of birth registration from birthing farm?</td>
<td>Remittance advice / proof of payment made to birthing farm: email, mobile phone SMS, WhatsApp Feed requirements Health Issues / Treatment</td>
<td>On arrival at the rearing / raising farm, identification data for livestock added to inventory &amp; registered.</td>
</tr>
<tr>
<td><strong>1b.13 Sale to finishing farm:</strong> Agree sale &amp; price with finishing</td>
<td>Purchase order from finishing farm Invoice to finishing farm</td>
<td>Transfer of ownership paperwork? Email or mobile confirmations from transporter &amp; farmer Bank confirmation to farmer of payment / mobile</td>
<td>Record of identification to be passed forward &amp; new ownership registered.</td>
</tr>
<tr>
<td><strong>1b.14 Agree Order Confirmation:</strong> Finishing farm receive purchase agreement from rearing / raising farm</td>
<td>Purchase agreement Invoice to finishing farm</td>
<td>Purchase agreement from rearing / raising farm: email, mobile phone SMS, WhatsApp</td>
<td>Record of transaction including, date of sale, quantity of livestock, type of livestock, identification data (if not on animal), (cost?)</td>
</tr>
<tr>
<td><strong>1b.15 Raise Order Confirmation:</strong> Finishing farm</td>
<td>Purchase order</td>
<td>Purchase order from finishing farm: email, mobile phone SMS, WhatsApp</td>
<td>Record of transaction including, date of sale, quantity of livestock, type of livestock, (cost?)</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions &amp; Data required</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------</td>
<td>-----------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>send purchase order to the rearing / raising farm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>1b.16 Order Transportation:</strong> Rearing / raising farm arrange transportation of livestock to the finishing farm</td>
<td>Purchase order</td>
<td>Purchase order from rearing / raising farm: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity of livestock, type of livestock, (cost?)</td>
</tr>
<tr>
<td><strong>1b.17: Receive Transport Order:</strong> Receive &amp; process transportation order &amp; confirm to rearing / raising farm</td>
<td>Order Confirmation</td>
<td>Order Confirmation from Transportation Product Guardian to rearing / raising farm: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity of livestock, type of livestock, (cost?)</td>
</tr>
</tbody>
</table>
| **1b.18 Collect & Transport animals:** Transportation Product Guardian collects animals from rearing / raising farm & delivers to the finishing farm | Invoice to rearing / raising farm  
Delivery note to finishing farm | Collection / Delivery confirmations: email, mobile phone SMS, WhatsApp | Dispatch note recording collection address, delivery address, date of collection, date of delivery, quantity of livestock, type of livestock |
| **1b.19 Finishing of livestock:** Livestock finishing completed to sell to slaughterhouse | Location of birth registration from birthing farm & rearing / raising farm? | Remittance advice / proof of payment made to rearing / raising farm: email, mobile phone SMS, WhatsApp  
Feed requirements  
Health Issues / Treatment | On arrival at the finishing farm, identification data for livestock added to inventory & registered. |
| **1b.20 Sale to slaughterhouse:** Agree sale & price with slaughterhouse | Purchase order from slaughterhouse.  
Invoice to slaughterhouse | Transfer of ownership paperwork?  
Email or mobile confirmations from transporter & farmer  
Bank confirmation to farmer of payment / mobile | Record of identification to be passed forward for change of ownership & end of life records. |
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>Required DOCUMENTS</th>
<th>Required OTHER INFORMATION / communication method</th>
<th>TRACEABILITY Actions &amp; Data required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1b.21 Agree Order</strong>&lt;br&gt;<strong>Confirmation:</strong> Slaughterhouse receives purchase agreement from finishing farm</td>
<td>Purchase agreement&lt;br&gt;Invoice to slaughterhouse</td>
<td>Purchase agreement from finishing farm: email, mobile phone SMS, WhatsApp</td>
<td>Record of transaction including, date of sale, quantity of livestock, type of livestock, identification data (if not on animal), (cost?)</td>
</tr>
<tr>
<td><strong>1b.22 Raise Order</strong>&lt;br&gt;<strong>Confirmation:</strong> Slaughterhouse send purchase order to the finishing farm</td>
<td>Purchase order</td>
<td>Purchase order from slaughterhouse: email, mobile phone SMS, WhatsApp</td>
<td>Record of transaction including, date of sale, quantity of livestock, type of livestock, (cost?)</td>
</tr>
<tr>
<td><strong>1b.23 Order Transportation:</strong> Finishing farm arrange transportation of livestock to the slaughterhouse</td>
<td>Purchase order</td>
<td>Purchase order from finishing farm: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity of livestock, type of livestock, (cost?)</td>
</tr>
<tr>
<td><strong>1b.24: Receive Transport Order:</strong> Receive &amp; process transportation order &amp; confirm to finishing farm</td>
<td>Order Confirmation</td>
<td>Order Confirmation from Transportation Product Guardian to finishing farm: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity of livestock, type of livestock, (cost?)</td>
</tr>
<tr>
<td><strong>1b.25 Collect &amp; Transport animals:</strong> Transportation Product Guardian collects animals from finishing farm &amp; delivers to the slaughterhouse</td>
<td>Invoice to finishing farm&lt;br&gt;Delivery note to slaughterhouse</td>
<td>Collection / Delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection address, delivery address, date of collection, date of delivery, quantity of livestock, type of livestock</td>
</tr>
</tbody>
</table>

**Output & criteria to exit the business process**<br>Slaughterhouse is in receipt of fully grown cattle ready for end-of-life process before the hide / skin is separated from the meat & carcass, ready for leather manufacturer (see BPD 2).

**“Common” exceptions/problems**<br>Identification not always transparent.<br>A rearing / raising farm may be receiving quantities of young cattle from a number of different birthing farms.<br>A finishing farm may be receiving quantities of part-raised cattle from a number of different rearing / raising farms.<br>Different systems of identification may be adopted by different farms
Transportation legislation may differ across countries or states which could impact animal health & welfare

Circular Economy related observations
- Waste from the food industry can be used as animal feed.
- Manure from animals can provide fertiliser (both on and off farms)
- Rotation of crops and livestock farming help to preserve biodiversity and health of soil

Other Observations, in particular related to traceability needs for different activities
- **Farm Models**: There are many different farming models globally, ranging from industrial systems as outlined in this BPD, to more simple whole life farms as illustrated in BPD 1a. Additionally there are global variances that must be recognised & in some instances protected within a transparent system, in order to preserve social economies & cultures.
- Different regulations & laws are applicable in different countries & regions.

Sustainability Risks, Criteria and Verification

<table>
<thead>
<tr>
<th>Sustainability risks (hot spots) within this process</th>
<th>Sustainability criteria and standards to address the risk</th>
<th>Verification methods for criteria and standards</th>
</tr>
</thead>
</table>
| A9. Health & Safety, including Personal Protective Equipment (PPE)  
A10. Human Rights  
A11. Labour Risks | B3. The International Labour Organization (ILO) Fundamental Convention  
B7. Ethical Trading Initiative (ETI)  
B18. Sedex  
B19. SGS SA8000 Social Accountability Audit  
B20. Social Accountability International (SAI) SA8000 Social Accountability Audit | 3rd party audits  
Self-assessment / self-evaluation  
Certification Programmes |
B4. AGW (A Greener World)  
B5. Assurewel  
B12. Organic Soil Association  
B14. Progressive Beef  
B15. QIMA  
B16: Red Tractor  
B17. RSPCA  
B19. SGS | 3rd party audits  
Self-assessment / self-evaluation  
Certification Programmes |
<table>
<thead>
<tr>
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<th>Sustainability criteria and standards to address the risk</th>
<th>Verification methods for criteria and standards</th>
</tr>
</thead>
</table>
| **General:**  
Index Benchmarking with B21. Sustainable Apparel Coalition (SAC)  
Compliance with B22. Textile Exchange LIA (Leather Impact Accelerator) |  |  |
| A3. Biodiversity, land and species conversion  
A6. Deforestation | B2. FAO (Food and Agriculture Organisation of the United Nations)  
B8. FSC (Forest Stewardship Council)  
B13. PEFC (Programme for the Endorsement of Forest Certification)  
B23. Visipec  
**Indirect Deforestation:**  
B25. DNV GL (Det Norske Veritas) | 3rd party audits  
Self-assessment / self-evaluation Certification Programmes |
| A7. Energy Consumption  
A8. Greenhouse Gas Emissions  
A14. Water Use |  |  |
Figure 32
Process 2 Slaughterhouse [overlay = traceability entry point processing]
Table 15  
**Process 2 (BPD)**

<table>
<thead>
<tr>
<th>Name of process</th>
<th>2. Slaughterhouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business process short description</td>
<td>The slaughter of livestock commonly takes place in an industrial slaughterhouse or abattoir, where the animal is slaughtered with the meat (from livestock) going to be butchered and the hides/skins sent for leather making or other by-product manufacturing. However, other kinds of slaughter take place, within smallholdings or by individuals who slaughter their own animals.</td>
</tr>
<tr>
<td>Process participants</td>
<td>Slaughterhouses (Abattoirs), Other Product / Service Suppliers for Transformations, Inspectors / Certifiers, Tanneries, Agents / Traders</td>
</tr>
<tr>
<td>Input &amp; criteria to enter/begin the process</td>
<td>End of life for livestock before separation for meat industry, leather industry &amp; other bi-product use. Some slaughterhouses may be attached to tanneries &amp; meatpacking plants. Other slaughter can take place on small holdings or family farms but for the purposes of this transparency project, we are using official slaughterhouse principles.</td>
</tr>
<tr>
<td>Parallel Processes</td>
<td>2.5 Inspection: Inspection / Certification of chemical &amp; legislative compliance &amp; processes can take place at the slaughterhouse at different parts of the process.</td>
</tr>
</tbody>
</table>

**Description of Activities**  
A step-by-step description of what happens in the process. If parallel or overlapping steps must be finished before the next step, the first two digits of the number should be the same with a third digit added.

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>Required DOCUMENTS</th>
<th>Required OTHER INFORMATION / communication method</th>
<th>TRACEABILITY Actions &amp; Data required</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.1 Order Hides: Tannery directly orders hides from slaughterhouse</td>
<td>Purchase Order from tannery to Slaughterhouse</td>
<td>Specific requirements such as species, weight, thickness? Order from tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of order requirements including, date for delivery, quantity of hides, type of hide, thickness or grade, origin if required</td>
</tr>
<tr>
<td>2.1.2 Order Hides: Hide Agent Trader directly orders hides from slaughterhouse</td>
<td>Purchase Order from agent trader to Slaughterhouse</td>
<td>Specific requirements such as species, weight, thickness? Order from agent trader: email, mobile phone SMS, WhatsApp</td>
<td>Record of order requirements including, date for delivery, quantity of hides, type of hide, thickness or grade, origin if required</td>
</tr>
<tr>
<td>2.2 Planning: Planning &amp; ordering of materials according to requirements</td>
<td>Purchase Order to suppliers Invoice from suppliers</td>
<td>Order from slaughterhouse: email, mobile phone SMS, WhatsApp</td>
<td>Record of supplies ordered</td>
</tr>
<tr>
<td>2.3 Receive Order: Order received &amp; processed by suppliers</td>
<td>Invoice to slaughterhouse from suppliers</td>
<td>Order confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note of supplies ordered</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions &amp; Data required</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------</td>
<td>-------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td><strong>2.4 Receive supplies:</strong> Receipt of materials to stock inventory</td>
<td>Despatch notes confirming goods received</td>
<td>Invoice to slaughterhouse from supplier: email, mobile phone SMS, WhatsApp</td>
<td>Inventory of materials to be registered at the farm.</td>
</tr>
<tr>
<td><strong>2.5 Inspection:</strong> Inspect / Certify chemical &amp; legislative compliance &amp; processes as requested</td>
<td>Confirmation of inspection visit dates.</td>
<td>Order from brand / farmer / manufacturer: email, mobile phone SMS, WhatsApp</td>
<td>Proof of successful inspection e.g. certification or corrective measures if not successful</td>
</tr>
<tr>
<td><strong>2.6 Receive livestock:</strong> Animals arrive for slaughter (From either BPD 1a or BPD 1b)</td>
<td>Transportation documentation?</td>
<td>Electronic or manual identification data? Health Issues / Treatment</td>
<td>Delivery note of date of sale, origin departure date, arrival date, quantity of livestock, type of livestock, identification data (if not on animal),</td>
</tr>
<tr>
<td><strong>2.7 Stunning of Livestock:</strong> Animals are stunned &amp; hung according to legislative requirements</td>
<td>Veterinarian’s signature of compliance?</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td><strong>2.8 Slaughter of Livestock:</strong> The slaughter process is conducted in the presence of a vet.</td>
<td>Veterinarian’s signature of compliance?</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td><strong>2.9.1 Hide Preservation:</strong> Hides are sent to preservation department following separation from the carcass. (To BPD 3)</td>
<td>------</td>
<td>------</td>
<td>Application of an identification mark</td>
</tr>
<tr>
<td><strong>2.9.2 Meat Packing:</strong> Carcass &amp; meat sent for meat processing, &amp; other biproducts</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
</tbody>
</table>

**Output & criteria to exit the business process**

Livestock end of life process is complete & the slaughtered animal is separated for its different value chains. The hide / skin now forms the start of the leather making process with preservation (see BPD 3).
### “Common” exceptions/problems

Identification not usually carried through on the hide / skin. Some slaughterhouses apply their own stamp or mark but not all.

Hides / skins can be sold on in a variety of ways which will result in different preservation methods being required (see BPD 3)

No universal law governing the way animals are slaughtered

### Circular Economy related observations

Slaughterhouses (abattoirs) can provide good examples of maximisation of product – separating and making use of all parts of the animal into food production, hides and skins for leather making and other by-products for industry, food and medical purposes.

### Other Observations, in particular related to traceability needs for different activities

Maintaining any form of traceability between the farm and the slaughterhouse appears generally to be related to animal health and decease regulations but not for material transparency.

### Related laws, rules, regulations

Different regulations & laws are applicable in different countries & regions.

### Sustainability Risks, Criteria and Verification

<table>
<thead>
<tr>
<th>Sustainability risks (hot spots) within this process</th>
<th>Sustainability criteria and standards to address the risk</th>
<th>Verification methods for criteria and standards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B2. FAO (Food and Agriculture Organisation of the United Nations)</td>
<td>Self-assessment / self-evaluation</td>
</tr>
<tr>
<td></td>
<td>B4. AGW (A Greener World)</td>
<td>Certification Programmes</td>
</tr>
<tr>
<td></td>
<td>B5. Assurewel</td>
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<td>B12. Organic Soil Association</td>
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</tr>
<tr>
<td><strong>General:</strong></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Index Benchmarking with B21. Sustainable Apparel Coalition (SAC)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compliance with B22. Textile Exchange LIA (Leather Impact Accelerator)</td>
<td></td>
</tr>
<tr>
<td>A1. Air Pollution</td>
<td>B3. The International Labour Organization (ILO)</td>
<td></td>
</tr>
<tr>
<td>Sustainability risks (hot spots) within this process</td>
<td>Sustainability criteria and standards to address the risk</td>
<td>Verification methods for criteria and standards</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>---------------------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>A9. Health &amp; Safety, including Personal Protective Equipment (PPE)</td>
<td>B19. SGS</td>
<td></td>
</tr>
<tr>
<td>A11. Labour Risks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A13. Water Pollution and Wastewater Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A14. Water Use</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Process 3 Hide & skin preservation [overlay = traceability entry point processing]
### Table 16
**Process 3 (BPD)**

<table>
<thead>
<tr>
<th>Name of process</th>
<th>3. Hide &amp; skin preservation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business process short description</strong></td>
<td>Although some hides are processed as “fresh” hides where no preservation is necessary, the majority will require some form of treatment to prevent decomposition before tanning begins. The most common form of preservation for hides and skins is “salting”, however, other methods used include: “drying”, “bactericides”, “brine curing” and “lowering water activity” (reducing water content to inhibit bacterial activity). “Pickling” and “tanning”, which are also used in intermediate stages in leather manufacture, can also be used for preservation.</td>
</tr>
<tr>
<td><strong>Process participants</strong></td>
<td>Slaughterhouses (Abattoirs), Other Product / Service Suppliers for Transformation, Inspectors / Certifiers, Transporter Product Guardians</td>
</tr>
<tr>
<td><strong>Input &amp; criteria to enter/begin the process</strong></td>
<td>Following separation of hide / skin from carcass / meat, the hide / skin will be preserved according to onward customer requirements &amp; location.</td>
</tr>
<tr>
<td><strong>Parallel Processes</strong></td>
<td>3.5 Inspection: Inspection / Certification of chemical &amp; legislative compliance &amp; processes can take place at the slaughterhouse at different parts of the process.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Description of Activities</strong></th>
<th><strong>A step-by-step description of what happens in the process. If parallel or overlapping steps much be finished before the next step, the first two digits of the number should be the same with a third digit added.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.1 Planning:</strong> Planning &amp; ordering of preservation materials according to requirements</td>
<td><strong>DESCRIPTION</strong></td>
</tr>
<tr>
<td><strong>3.2 Receive Order:</strong> Order received &amp; processed by suppliers</td>
<td><strong>Required DOCUMENTS</strong></td>
</tr>
<tr>
<td><strong>3.3 Dispatch Order:</strong> Dispatch supplies to the slaughterhouse</td>
<td><strong>Required OTHER INFORMATION / communication method</strong></td>
</tr>
<tr>
<td><strong>3.4 Receive Supplies:</strong> Receipt of materials to stock inventory</td>
<td><strong>TRACEABILITY Actions &amp; Data required</strong></td>
</tr>
<tr>
<td><strong>3.5 Inspection:</strong> Inspect / Certify chemical &amp; legislative</td>
<td>Confirmation of inspection visit dates.</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>compliance &amp; processes as requested</td>
<td></td>
</tr>
<tr>
<td><strong>3.6 Receive Hides / Skins:</strong> Hides / skins arrive from slaughter department (From BPD 2)</td>
<td>Transfer documentation?</td>
</tr>
<tr>
<td><strong>3.7 Preservation Selection:</strong> Preservation method based on order from tannery or agent / trader</td>
<td>Method materials / volumes &amp; customer confirmation</td>
</tr>
<tr>
<td><strong>3.8 Preserve Hides / Skins:</strong> Preserve hides / skins using selected method.</td>
<td>Method materials / volumes &amp; customer confirmation</td>
</tr>
<tr>
<td><strong>3.9 Order Transportation:</strong> Arrange transportation to tannery</td>
<td>Purchase order</td>
</tr>
<tr>
<td><strong>3.10 Receive Transport Order:</strong> Receive &amp; process transportation order &amp; confirm to the slaughterhouse</td>
<td>Order Confirmation</td>
</tr>
<tr>
<td><strong>3.11 Collect &amp; Transport Hides / Skins:</strong> Pick up hides / skins from slaughterhouse &amp; deliver to tannery (Go to BPD 4)</td>
<td>Invoice to the slaughterhouse Delivery note to the tannery</td>
</tr>
<tr>
<td>Output &amp; criteria to exit the business process</td>
<td>End of slaughterhouse process – this concludes the upstream processes that are not in the direct control of tanneries &amp; leather manufacturers. Leather making responsibility now starts (see BPD 4).</td>
</tr>
<tr>
<td>“Common” exceptions/problems</td>
<td>Identification not usually carried through on the hide / skin. Some slaughterhouses apply their own stamp or mark but not all. Hides / skins can be sold on in a variety of ways which will result in different preservation methods being required (see BPD 3) No universal law governing the way animals are slaughtered</td>
</tr>
<tr>
<td>Circular Economy related observations</td>
<td>None</td>
</tr>
<tr>
<td>Other Observations, in particular related to traceability needs for different activities</td>
<td>The traceability concern here would centre around any need to record the method of preservation. For example, in the case of salting, if a sustainability claim is to be made around environmentally responsible removal / disposal / reuse of salt. Otherwise, traceability of the material is static through this process if conducted by the slaughterhouse.</td>
</tr>
<tr>
<td>Related laws, rules, regulations</td>
<td>There are no laws or regulations relating to the preservation process, however, different preserving methods / agents can be adopted.</td>
</tr>
<tr>
<td><strong>Sustainability Risks, Criteria and Verification</strong></td>
<td><strong>Sustainability risks (hot spots) within this process</strong></td>
</tr>
<tr>
<td></td>
<td>A9. Health &amp; Safety, including Personal Protective Equipment (PPE)</td>
</tr>
<tr>
<td></td>
<td>A14. Water Use</td>
</tr>
</tbody>
</table>
Figure 34
Process 4 Tanning (raw to tanned process) [overlay = traceability entry point processing]
<table>
<thead>
<tr>
<th>Name of process</th>
<th>4. Tanning (raw to tanned process)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business process short description</td>
<td>This process groups a number of activities which, combined, form the first transformation stage from a raw hide/skin to tanned material. Usually, these activities take place in one facility and include: soaking, liming &amp; fleshing; deliming &amp; bating; degreasing &amp; pickling; tanning (Chrome tanning, synthetic tanning, vegetable tanning); sammying.</td>
</tr>
<tr>
<td>Process participants</td>
<td>Tanneries, Other Product / Service Suppliers for Transformation, Inspectors /Certifiers, Other Service Providers – Waste Services / Treatment, Agents / Traders, Transporter Product Guardians</td>
</tr>
<tr>
<td>Input and criteria to enter/begin the process</td>
<td>Input at the tannery is the receipt of the raw hides / skins, either fresh if coming immediately from a slaughterhouse or preserved if transportation from a different location has been required.</td>
</tr>
<tr>
<td>Parallel Processes</td>
<td><strong>4.4 Inspection</strong>: Certification / Inspection of chemical &amp; legislative compliance &amp; processes can take place at the tannery at different parts of the process.</td>
</tr>
</tbody>
</table>

**Description of Activities**

A step-by-step description of what happens in the process. If parallel or overlapping steps much be finished before the next step, the first two digits of the number should be the same with a third digit added.

<table>
<thead>
<tr>
<th>Description</th>
<th>Required DOCUMENTS</th>
<th>Required OTHER INFORMATION / communication method</th>
<th>TRACEABILITY Actions and Data required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4.1 Planning</strong>: Planning of first transformation &amp; ordering of materials</td>
<td>Purchase Order to suppliers Invoice from suppliers</td>
<td>Order from tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of supplies ordered</td>
</tr>
<tr>
<td><strong>4.2.1 Chemicals Order</strong>: Order received, processed and dispatched by chemical supplier</td>
<td>Invoice to tannery from chemical suppliers Dispatch note to accompany supplies</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note record of supplies delivered</td>
</tr>
<tr>
<td><strong>4.2.2 Ancillaries Order</strong>: Order received, processed and dispatched by suppliers</td>
<td>Invoice to tannery from suppliers Dispatch note to accompany supplies</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note record of supplies delivered</td>
</tr>
<tr>
<td><strong>4.3 Receive Suppliers / Inventory</strong>: Receipt of transformation supplies inventory</td>
<td>Dispatch notes confirming goods received</td>
<td>Invoice to tannery from product / service suppliers: email, mobile phone SMS, WhatsApp</td>
<td>Inventory of chemicals and other transformation materials to be registered at the tannery. Data recorded from dispatch notes containing type of supply, quantity,</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------</td>
<td>--------------------------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td><strong>4.4 Receive Hides / Skins Inventory:</strong> Receipt of hides / skins (From BPD 3)</td>
<td>Dispatch notes confirming goods received</td>
<td>Invoice to tannery from slaughterhouse: email, mobile phone SMS, WhatsApp Electronic or manual identification of hides / skins data if available should be captured. If not available already, then identification should be added?</td>
<td>Inventory of hides / skins received, to be registered at the tannery. Data recorded from dispatch notes containing collection date, delivery date, quantity of hides / skins, type of hides / skins, collection address, destination tannery address (cost?)</td>
</tr>
<tr>
<td><strong>4.5 Inspection:</strong> Inspect / Certify chemical &amp; legislative compliance &amp; processes as requested</td>
<td>Confirmation of inspection visit dates.</td>
<td>Order from brand / tannery / manufacturer: email, mobile phone SMS, WhatsApp</td>
<td>Proof of successful inspection e.g. certification or corrective measures if not successful</td>
</tr>
<tr>
<td><strong>4.6 Soaking, Fleshing &amp; Liming:</strong> Initial conditioning of the hides / skins takes place</td>
<td>------</td>
<td>Electronic or manual internal system</td>
<td>Record electronically or manually the batches, chemicals and quantities for process / transparency audit trail.</td>
</tr>
<tr>
<td><strong>4.7 Deliming &amp; Bating:</strong> Hair removal, neutralisation &amp; enzyme treatments</td>
<td>------</td>
<td>Electronic or manual internal system</td>
<td>Record electronically or manually the batches, chemicals and quantities for process / transparency audit trail</td>
</tr>
<tr>
<td><strong>4.8 Tanning:</strong> Chrome, synthetic or vegetable tanning process</td>
<td>Method materials / volumes and customer confirmation</td>
<td>Electronic or manual internal system</td>
<td>Record electronically or manually the method of tanning, batches, chemicals and quantities for process / transparency audit trail</td>
</tr>
<tr>
<td><strong>4.9 Sammying:</strong> Removal of excess water &amp; wrinkles</td>
<td>------</td>
<td>Electronic or manual internal system</td>
<td>Record electronically or manually the batches, chemicals and quantities for process / transparency audit trail.</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------</td>
<td>-----------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td><strong>4.10 Quality Control:</strong> Evaluation of material quality to approve or reject</td>
<td>Criteria for quality, method of assessment</td>
<td>Electronic of manual internal system</td>
<td>Record electronically or manually the batches, results and final destination (pass for continued production or rejected as waste)</td>
</tr>
<tr>
<td><strong>4.10.1 Reject Traceable Asset:</strong> Reject and dispose of sub-standard material</td>
<td>Criteria for disposing of waste or sub-standard material</td>
<td>Electronic of manual internal system</td>
<td>Record electronically or manually the waste disposal of material, batch, quantity, type of waste disposal required, waste service provider used</td>
</tr>
<tr>
<td><strong>4.11 Order Waste Services:</strong> In accordance with legal permits &amp; requirements</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the waste collection or service supplier: email, mobile phone SMS, WhatsApp</td>
<td>Record of type of waste, quantity, treatment required, collection date, destination of solid wastes, treatment for effluent</td>
</tr>
<tr>
<td><strong>4.12 Waste Service Order:</strong> Receive and implement waste collection or service</td>
<td>Order Confirmation</td>
<td>Order confirmation from waste service provider to tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of type of waste, quantity, treatment required, collection date, destination of solid wastes, treatment for effluent</td>
</tr>
<tr>
<td><strong>4.13.1 Move to next process:</strong> If tannery is continuing with leather transformation in situ (Go to BPD 5) or:</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td><strong>4.13.2 Sell to Agent / Trader:</strong> Arrange sale contract with an agent / trader or:</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the agent / trader: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td><strong>4.13.3 Sell to a Tannery:</strong> Arrange sale contract with a finishing tannery</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the finishing tannery: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td><strong>4.14.1 Purchase Goods:</strong> Send purchase order &amp; buy material to sell on to finishing tanneries</td>
<td>Order Confirmation</td>
<td>Order confirmation from finishing tannery to tannery:</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
</tr>
<tr>
<td>-----------------------------------------------------------------</td>
<td>--------------------</td>
<td>--------------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td><strong>4.14.2 Purchase Goods:</strong> Send purchase order &amp; buy material to finish transformation of leather</td>
<td>Order Confirmation</td>
<td>Order confirmation from agent / trader to tannery: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td><strong>4.15 Order Transportation:</strong> Arrange transportation to either finishing tannery or agent / trader</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to transporter product guardian: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity / types of material, collection address, destination address (cost?)</td>
</tr>
<tr>
<td><strong>4.16 Receive Transport Order:</strong> Receive &amp; process transportation order &amp; confirm to the tannery.</td>
<td>Order Confirmation</td>
<td>Order confirmation from transporter product guardian to the tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity / types of material, collection address, destination address (cost?)</td>
</tr>
<tr>
<td><strong>4.17 Collect &amp; Transport Material:</strong> Pick up material from tannery &amp; deliver to finishing tannery or agent / trader (Go to BPD 5)</td>
<td>Invoice to the tannery, Delivery note to the finishing tannery or agent / trader</td>
<td>Collection / delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection date, delivery date, quantity / type of material, collection address, destination address (cost?)</td>
</tr>
</tbody>
</table>

| Output and criteria to exit the business process | **End of initial transformation process from raw hides / skins to tanned material. This material could continue to be processed in the same tannery or sold in a part-processed state to another tannery for finishing or to an agent / trader for onward sale. (see BPD 5).** |
| **“Common” exceptions/problems**                                      | Some potential problems could arise from incorrect dosing of chemicals, resulting in formation of Hydrogen Sulphide – however this is the exception and not common. |
| **Circular Economy related observations**                               | Many tanneries practice good maximisation of hide / skin processing, for example, trimming off waste before tanning process to reduce chemical use, water use and increase efficiency. The trimmings can be used for by-product manufacturer or sold to companies who manufacture bonded leather. |
If the material is to be sold for onward processing / production, then the continued transparency of the identification can be lost. Just putting one identifier on material at the start of the process is not enough to guarantee that the material has not been processed at least in part by non-compliant or irresponsible manufacturers. An example could be a tannery that uses a claim of “chrome-free” for their part of the manufacture, cannot be a guarantee for the whole manufacture unless full transparency is demonstrated. Different regions and countries will have specific legislation around operating permits, water discharge parameters and air emissions.

<table>
<thead>
<tr>
<th>Sustainability Risks, Criteria and Verification</th>
<th>Sustainability risks (hot spots) within this process</th>
<th>Sustainability criteria and standards to address the risk</th>
<th>Verification methods for criteria and standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1. Air Pollution</td>
<td>B6. CSCB (The Brazilian Leather Certification of Sustainability)</td>
<td>3rd party audits</td>
<td></td>
</tr>
<tr>
<td>A9. Health &amp; Safety, including Personal Protective Equipment (PPE)</td>
<td>B24. ZDHC (Zero Discharge of Hazardous Chemicals)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A12. Solid Production Waste</td>
<td>(this list is not exhaustive)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A13. Water Pollution and Wastewater Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A14. Water Use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B18. Sedex</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B19. SGS</td>
<td></td>
</tr>
</tbody>
</table>

General:
Index Benchmarking with B21. Sustainable Apparel Coalition (SAC)
Compliance with B22. Textile Exchange LIA (Leather Impact Accelerator)

<p>|                                               | A19. SGS                                                |                                                   |
|                                               |                                                       |                                                   |</p>
<table>
<thead>
<tr>
<th>Sustainability risks (hot spots) within this process</th>
<th>Sustainability criteria and standards to address the risk</th>
<th>Verification methods for criteria and standards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B20. Social Accountability International (SAI)</td>
<td>(this list is not exhaustive). In addition, many brands have their own social compliance audits.</td>
</tr>
</tbody>
</table>
Figure 35
Process 5 Splitting, shaving & sorting [overlay = traceability product transformation process]
<table>
<thead>
<tr>
<th>Name of process</th>
<th>5. Splitting shaving &amp; sorting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business process short description</td>
<td>Leather can be split to reduce the thickness of the original hide. This results in a top “grain split” used for shoes, gloves, purses, clothing, and the “flesh split” leather (bottom part of the hide), often known as split suede which can be finished/coated and used for clothing, shoes, gloves, and bags. Whether the leather is split or not depends on the thickness of the original hide/skin and its intended application. With very thick or heavy hides it is also possible to create a “middle split”. Shaving takes place to ensure uniform thickness of material before sorting into different grades for onward processing.</td>
</tr>
<tr>
<td>Process participants</td>
<td>Tanneries, Other Product / Service Suppliers for Transformation, Inspectors / Certifiers, Other Service Providers – Waste Services / Treatment, Agent / Traders, Subcontractors, Transporter Product Guardians</td>
</tr>
<tr>
<td>Input and criteria to enter/begin the process</td>
<td>Input for this stage may just be movement of material from one department to another within the same facility or it could form the first process at a second tannery in the value chain. Additionally, this is a process that a tannery could subcontract out to another facility in which case the transparency of that process should be recorded.</td>
</tr>
<tr>
<td>Parallel Processes</td>
<td>5.4 Inspection: Inspection / Certification of chemical &amp; legislative compliance &amp; processes can take place at the tannery or subcontractor facility at different parts of the process.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of Activities</th>
<th>5.1.1 Send to Subcontractor: Send hides for splitting &amp; shaving (from BPD 4)</th>
<th>5.1.2 Planning: Place orders with subcontractor to provide splitting &amp; shaving &amp; transportation services</th>
<th>5.1.3 Receive Order: Receive order for subcontract services</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
</tr>
<tr>
<td>5.1.1 Send to Subcontractor: Send hides for splitting &amp; shaving (from BPD 4)</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>5.1.2 Planning: Place orders with subcontractor to provide splitting &amp; shaving &amp; transportation services</td>
<td>Purchase Orders to subcontractor &amp; transportation product guardian</td>
<td>Orders from tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of services required, quantity / type of material, dates of collection and return to tannery, collection address, delivery address</td>
</tr>
<tr>
<td>5.1.3 Receive Order: Receive order for subcontract services</td>
<td>Invoice to tannery from subcontractor</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Order confirmation for services to be carried out, quantity / type of material, dates of collection and return to tannery, collection address, delivery address</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------</td>
<td>-----------------------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td><strong>5.1.4 Receive Order:</strong> Receive order for transportation services</td>
<td>Order confirmation to tannery</td>
<td>Order confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Order confirmation for transportation, quantity / type of material, dates of collection and return to tannery, collection address, delivery address</td>
</tr>
<tr>
<td><strong>5.1.5. Collect &amp; Transport Material:</strong> Pick up material from tannery &amp; deliver to subcontractor</td>
<td>Invoice to the tannery Delivery note to the subcontractor</td>
<td>Collection / delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection date, delivery date, quantity / type of material, collection address, destination address, return date.</td>
</tr>
<tr>
<td><strong>5.1.6 Process Material:</strong> Provide splitting &amp; shaving service (steps 5.2 – 5.7 below)</td>
<td>------</td>
<td>Manual or electronic internal production system</td>
<td>Record batches and measurements for processes carried out.</td>
</tr>
<tr>
<td><strong>5.1.7. Collect &amp; Transport Material:</strong> Pick up material from subcontractor &amp; deliver back to tannery</td>
<td>Invoice to the tannery Delivery note to the tannery</td>
<td>Collection / delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection date, delivery date, quantity / type of material, collection address, destination address</td>
</tr>
<tr>
<td><strong>5.1.8 Receive Material:</strong> Material is received back at the tannery and placed back into inventory</td>
<td>Dispatch notes confirming goods received</td>
<td>Electronic or manual identification of material should be reconciled against the material sent to provide continued traceability of material production</td>
<td>Inventory of material received, to be re-registered at the tannery. Data recorded from dispatch notes containing collection date, delivery date, quantity &amp; type of material, subcontractor details, dates of movement from tannery to subcontractor and back to tannery</td>
</tr>
<tr>
<td><strong>OR:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5.1.2 Continue In-house:</strong> Continued leather production in-house at the tannery (from BPD 4)</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
</tr>
<tr>
<td>-------------</td>
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<td>-----------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td><strong>5.2 Planning:</strong> Planning of work and place orders with transformation suppliers</td>
<td>Purchase Orders to suppliers</td>
<td>Orders from tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of supplies required</td>
</tr>
<tr>
<td><strong>5.3 Ancillaries Order:</strong> Orders received, processed and dispatched by suppliers</td>
<td>Invoice to tannery from suppliers</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note record of supplies delivered Supplies added to inventory at tannery</td>
</tr>
<tr>
<td><strong>5.4 Inspection:</strong> Inspect / Certify chemical &amp; legislative compliance &amp; processes as requested</td>
<td>Confirmation of inspection visit dates.</td>
<td>Order from brand / tannery / manufacturer: email, mobile phone SMS, WhatsApp</td>
<td>Proof of successful inspection e.g. certification or corrective measures if not successful</td>
</tr>
<tr>
<td><strong>5.5 Splitting:</strong> Material is split into top grain and drop split (if required)</td>
<td>-------</td>
<td>Electronic or manual internal system</td>
<td>Record electronically or manually the batches, thickness / weight or other data. Apply an identifier to the drop split to main traceability?</td>
</tr>
<tr>
<td><strong>5.6 Shaving &amp; Sorting:</strong> Material is shaved to a uniform thickness and sorted into batches according to requirements</td>
<td>-------</td>
<td>Electronic or manual internal system</td>
<td>Ensure identifiers are not lost in the shaving or re-apply if necessary?</td>
</tr>
<tr>
<td><strong>5.7 Quality Control:</strong> Evaluation of material quality to approve or reject</td>
<td>Criteria for quality, method of assessment</td>
<td>Electronic of manual internal system</td>
<td>Record electronically or manually the batches, results and final destination (pass for continued production or rejected as waste)</td>
</tr>
<tr>
<td><strong>5.7.1 Reject Traceable Asset:</strong> Reject and dispose of sub-standard material</td>
<td>Criteria for disposing of waste or sub-standard material</td>
<td>Electronic of manual internal system</td>
<td>Record electronically or manually the waste disposal of material, batch, quantity, type of waste disposal required, waste service provider used</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>---------------------------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td><strong>5.8 Order Waste Services:</strong> In accordance with legal permits &amp; requirements</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the waste collection or service supplier: email, mobile phone SMS, WhatsApp</td>
<td>Record of type of waste, quantity, treatment required, collection date, destination of solid wastes, treatment for effluent</td>
</tr>
<tr>
<td><strong>5.9 Waste Service Order:</strong> Receive and implement waste collection or service</td>
<td>Order Confirmation</td>
<td>Order confirmation from waste service provider to tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of type of waste, quantity, treatment required, collection date, destination of solid wastes, treatment for effluent</td>
</tr>
<tr>
<td><strong>5.10.1 Move to next process:</strong> If tannery is continuing with leather transformation in situ (Go to BPD 6) or:</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td><strong>5.10.2 Sell to Agent / Trader:</strong> Arrange sale contract with an agent / trader or:</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the agent / trader: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td><strong>5.10.3 Sell to a Tannery:</strong> Arrange sale contract with a finishing tannery</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the finishing tannery: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td><strong>5.10.2.1 Purchase Goods:</strong> Send purchase order &amp; buy material to sell on to finishing tanneries</td>
<td>Order Confirmation</td>
<td>Order confirmation from agent / trader to tannery: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td><strong>5.10.3.1 Purchase Goods:</strong> Send purchase order &amp; buy material to finish transformation of leather</td>
<td>Order Confirmation</td>
<td>Order confirmation from finishing tannery to tannery: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------</td>
<td>-----------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>5.11 Order Transportation: Arrange transportation to either finishing tannery or agent / trader</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to transporter product guardian: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity / types of material, collection address, destination address (cost?)</td>
</tr>
<tr>
<td>5.12 Receive Transport Order: Receive &amp; process transportation order &amp; confirm to the tannery.</td>
<td>Order Confirmation</td>
<td>Order confirmation from transporter product guardian to the tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity / types of material, collection address, destination address (cost?)</td>
</tr>
<tr>
<td>5.13 Collect &amp; Transport Material: Pick up material from tannery &amp; deliver to finishing tannery or agent / trader (Go to BPD 6)</td>
<td>Invoice to the tannery Delivery note to the finishing tannery or agent / trader</td>
<td>Collection / delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection date, delivery date, quantity / type of material, collection address, destination address (cost?)</td>
</tr>
</tbody>
</table>

**Output and criteria to exit the business process**

This process is usually carried out as an intermediate process within the full production of leather manufacture so would not always have an output as the material would move on naturally to the next stage of manufacturer. However, some value chains may include agents / traders who buy part-processed material, perform just this one operation and then sell the material for finishing. Tanneries may also sell material at the end of this process to finishing tanneries. The next process is documented in BPD 6

**“Common” exceptions/problems**

None

**Circular Economy related observations**

By considering the application for the end leather, efficiencies or leather finishing production can be maximised by “splitting” the hides / skins to ensure maximisation of yield and minimisation of chemical / finishing products.
At this stage, trimming off waste will also reduce chemical use, water use and increase efficiency to reduce energy consumption. The trimmings can be used for by-product manufacturer or sold to companies who manufacture bonded leather and class themselves as recyclers.

**Other Observations, in particular related to traceability needs for different activities**

If the material is to be sold for onward processing / production, then the continued transparency of the identification can be lost. Just putting one identifier on material at the start of the process is not enough to guarantee that the material has not been processed at least in part by non-compliant or irresponsible manufacturers.
Of particular consideration for material that has been “split” is the loss of a physical stamp from one half of the split material, so ensuring a physical mark is on both sides of the material or re-application of a mark to the “split” would need to occur. In addition, the quantity of material could double, and this would need to be accounted for to reconcile number of hides going into the facility against number of hides leaving the facility.
Different regions and countries will have specific legislation around operating permits, water discharge parameters and air emissions.

<table>
<thead>
<tr>
<th>Sustainability Risks, Criteria and Verification</th>
<th>Sustainability risks (hot spots) within this process</th>
<th>Sustainability criteria and standards to address the risk</th>
<th>Verification methods for criteria and standards</th>
</tr>
</thead>
</table>
Figure 36
Process 6 Retanning / Fatliquoring & Crusting [overlay = traceability product transformation process]
### Table 19

#### Process 6 (BPD)

<table>
<thead>
<tr>
<th>Name of process</th>
<th>6. Retanning / fatliquoring &amp; crusting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business process short description</td>
<td>This process varies according to the desired end result and is adjusted for different leather types (i.e. split leathers, nubuck, suede) and different leather uses (i.e. shoe uppers, garments, upholstery and bags). Retanning is used to improve or modify the characteristic properties of the material for look, feel, buffing and dyeing, water resistance and colour fastness. Fatliquoring (or oiling the leather) also occurs at this stage to lubricate the fibres of the material for appearance, feel and durability. If the tannery is selling the leather to be finished in another tannery, they may dry the material to a “pearl crust leather” state before sale. Tanners may also dry their material to store it until they have order requirements (especially colour) for specific finishes.</td>
</tr>
</tbody>
</table>

| Process participants | Tanneries, Other Product / Service Suppliers for Transformation, Inspectors / Certifiers, Other Service Providers – Waste Services / Treatment, Agent / Traders, Subcontractors, Transporter Product Guardians |

| Input and criteria to enter/begin the process | Input for this stage may just be movement of material from one department to another within the same facility or it could form the first process at a second tannery in the value chain. Additionally, this is a process that a tannery could sub-contract out to another facility in which case the transparency of that process should be recorded. |

| Parallel Processes | 6.4 Inspection: Certification / Inspection of chemical & legislative compliance & processes can take place at the tannery or subcontractor facility at different parts of the process. |

| Description of Activities | A step-by-step description of what happens in the process. If parallel or overlapping steps much be finished before the next step, the first two digits of the number should be the same with a third digit added. |

<table>
<thead>
<tr>
<th>Description</th>
<th>Required DOCUMENTS</th>
<th>Required OTHER INFORMATION / communication method</th>
<th>TRACEABILITY Actions and Data required</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1.1 Send to Subcontractor: Send material for retanning and fatliquoring (from BPD 5)</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>6.1.2 Planning: Place orders with subcontractor to provide retaining / fatliquoring &amp; transportation services</td>
<td>Purchase Orders to subcontractor &amp; transportation product guardian</td>
<td>Orders from tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of services required, quantity / type of material, dates of collection and return to tannery, collection address, delivery address</td>
</tr>
<tr>
<td>6.1.3 Receive Order: Receive order for subcontract services</td>
<td>Invoice to tannery from subcontractor Order confirmation to tannery</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Order confirmation for services to be carried out, quantity / type of material, dates of collection and return to tannery, collection address, delivery address</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------</td>
<td>---------------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>6.1.4 Receive Order: Receive order for transportation services</td>
<td>Order confirmation to tannery</td>
<td>Order confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Order confirmation for transportation, quantity / type of material, dates of collection and return to tannery, collection address, delivery address</td>
</tr>
<tr>
<td>6.1.5. Collect &amp; Transport Material: Pick up material from tannery &amp; deliver to subcontractor</td>
<td>Invoice to the tannery Delivery note to the subcontractor</td>
<td>Collection / delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection date, delivery date, quantity / type of material, collection address, destination address, return date.</td>
</tr>
<tr>
<td>6.1.6 Process Material: Provide splitting &amp; shaving service (steps 6.2 – 6.5 below)</td>
<td>Manual or electronic internal production system</td>
<td>Record batches and processes carried out along with materials and quantities used in accordance with tannery specifications.</td>
<td></td>
</tr>
<tr>
<td>6.1.7. Collect &amp; Transport Material: Pick up material from subcontractor &amp; deliver back to tannery</td>
<td>Invoice to the tannery Delivery note to the tannery</td>
<td>Collection / delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection date, delivery date, quantity / type of material, collection address, destination address</td>
</tr>
<tr>
<td>6.1.8 Receive Material: Material is received back at the tannery and placed back into inventory</td>
<td>Dispatch notes confirming goods received</td>
<td>Electronic or manual identification of material should be reconciled against the material sent to provide continued traceability of material production</td>
<td>Inventory of material received, to be re-registered at the tannery. Data recorded from dispatch notes containing collection date, delivery date, quantity &amp; type of material, subcontractor details, dates of movement from tannery to subcontractor and back to tannery</td>
</tr>
</tbody>
</table>

OR:

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>Required DOCUMENTS</th>
<th>Required OTHER INFORMATION / communication method</th>
<th>TRACEABILITY Actions and Data required</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1.2 Continue In-house: Continued leather production in-house at the tannery (from BPD 5)</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------</td>
<td>-----------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td><strong>6.2 Planning:</strong> Planning of work and place orders with transformation suppliers</td>
<td>Purchase Orders to suppliers</td>
<td>Orders from tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of supplies required</td>
</tr>
<tr>
<td><strong>6.3.1 Chemicals Order:</strong> Order received, processed and dispatched by suppliers</td>
<td>Invoice to tannery from chemical supplier, Dispatch note to accompany supplies</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note record of chemical supplies delivered, Supplies added to inventory at tannery</td>
</tr>
<tr>
<td><strong>6.3.2 Ancillaries Order:</strong> Orders received, processed and dispatched by suppliers</td>
<td>Invoice to tannery from suppliers, Dispatch note to accompany supplies</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note record of supplies delivered, Supplies added to inventory at tannery</td>
</tr>
<tr>
<td><strong>6.4 Inspection:</strong> Certify / Inspect chemical &amp; legislative compliance &amp; processes as requested</td>
<td>Confirmation of inspection visit dates.</td>
<td>Order from brand / tannery / manufacturer: email, mobile phone SMS, WhatsApp</td>
<td>Proof of successful inspection e.g. certification or corrective measures if not successful</td>
</tr>
<tr>
<td><strong>6.5 Retanning:</strong> Material is retanned to meet specifications. Fatliquoring can also take place at this stage</td>
<td>------</td>
<td>Electronic or manual internal system</td>
<td>Record electronically or manually the batches, thickness / weight and other specifications as required</td>
</tr>
<tr>
<td><strong>6.6 Crust:</strong> Material is dried to a crust state for storage / sale</td>
<td>------</td>
<td>Electronic or manual internal system</td>
<td>Maintain record of batches for transparency and problem-solving efficiency.</td>
</tr>
<tr>
<td><strong>6.7 Quality Control:</strong> Evaluation of material quality to approve or reject</td>
<td>Criteria for quality, method of assessment</td>
<td>Electronic of manual internal system</td>
<td>Record electronically or manually the batches, results and final destination (pass for continued production or rejected as waste)</td>
</tr>
<tr>
<td><strong>6.7.1 Reject Traceable Asset:</strong> Reject and dispose of sub-standard material</td>
<td>Criteria for disposing of waste or sub-standard material</td>
<td>Electronic of manual internal system</td>
<td>Record electronically or manually the waste disposal of material, batch, quantity, type of</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------</td>
<td>--------------------------------------------------</td>
<td>-----------------------------------------</td>
</tr>
<tr>
<td>6.8 Order Waste Services: In accordance with legal permits &amp; requirements</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the waste collection or service supplier: email, mobile phone SMS, WhatsApp</td>
<td>Record of type of waste, quantity, treatment required, collection date, destination of solid wastes, treatment for effluent</td>
</tr>
<tr>
<td>6.9 Waste Service Order: Receive and implement waste collection or service</td>
<td>Order Confirmation</td>
<td>Order confirmation from waste service provider to tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of type of waste, quantity, treatment required, collection date, destination of solid wastes, treatment for effluent</td>
</tr>
<tr>
<td>6.10.1 Move to next process: If tannery is continuing with leather transformation in situ (Go to BPD 7) or:</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>6.10.2 Sell to Agent / Trader: Arrange sale contract with an agent / trader or:</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the agent / trader: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td>6.10.3 Sell to a Tannery: Arrange sale contract with a finishing tannery</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the finishing tannery: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td>6.10.2.1 Purchase Goods: Send purchase order &amp; buy material to sell on to finishing tanneries</td>
<td>Order Confirmation</td>
<td>Order confirmation from agent / trader to tannery: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td>6.10.3.1 Purchase Goods: Send purchase order &amp; buy material to finish transformation of leather</td>
<td>Order Confirmation</td>
<td>Order confirmation from finishing tannery to tannery: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
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</tr>
<tr>
<td>-------------</td>
<td>--------------------</td>
<td>--------------------------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td><strong>6.11 Order Transportation:</strong> Arrange transportation to either finishing tannery or agent / trader</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to transporter product guardian: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity / types of material, collection address, destination address (cost?)</td>
</tr>
<tr>
<td><strong>6.12 Receive Transport Order:</strong> Receive &amp; process transportation order &amp; confirm to the tannery.</td>
<td>Order Confirmation</td>
<td>Order confirmation from transporter product guardian to the tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity / types of material, collection address, destination address (cost?)</td>
</tr>
<tr>
<td><strong>6.13 Collect &amp; Transport Material:</strong> Pick up material from tannery &amp; deliver to finishing tannery or agent / trader (Go to BPD 7)</td>
<td>Invoice to the tannery Delivery note to the finishing tannery or agent / trader</td>
<td>Collection / delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection date, delivery date, quantity / type of material, collection address, destination address (cost?)</td>
</tr>
</tbody>
</table>

**Output and criteria to exit the business process**

This process is usually carried out as an intermediate process within the full production of leather manufacture so would not always have an output as the material would move on naturally to the next stage of manufacturer. However, some value chains may include tanneries that subcontract this process out before selling the material on to be finished in another tannery. Tanneries may also sell material at the end of this process to finishing tanneries. The next process is documented in BPD 7

**“Common” exceptions/problems**

Some potential problems could arise from incorrect dosing or handling of chemicals during retanning and fatliquoring.

**Circular Economy related observations**

None

**Other Observations, in particular related to traceability needs for different activities**

If the material is to be sold for onward processing / production, then the continued transparency of the identification can be lost. Just putting one identifier on material at the start of the process is not enough to guarantee that the material has not been processed at least in part by non-compliant or irresponsible manufacturers.

It is also important that if a tannery is subcontracting this process out, that a record of change of temporary custodianship is also recognised and that subcontractors are also sustainably responsible and transparent.

**Related laws, rules, regulations**

Different regions and countries will have specific legislation around operating permits, water discharge parameters and air emissions.
<table>
<thead>
<tr>
<th>Sustainability Risks, Criteria and Verification</th>
<th>Sustainability risks (hot spots) within this process</th>
<th>Sustainability criteria and standards to address the risk</th>
<th>Verification methods for criteria and standards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A1. Air Pollution</td>
<td>B6. CSCB (The Brazilian Leather Certification of Sustainability)</td>
<td>3rd party audits</td>
</tr>
<tr>
<td></td>
<td>A9. Health &amp; Safety, including Personal Protective Equipment (PPE)</td>
<td>B19. SGS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A13. Water Pollution and Wastewater Management</td>
<td>(this list is not exhaustive)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A14. Water Use</td>
<td>In addition, many brands have their own auditors and criteria including Restricted Substance Lists.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>General:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Index Benchmarking with B21. Sustainable Apparel Coalition (SAC)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Compliance with B22. Textile Exchange LIA (Leather Impact Accelerator)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A9. Health &amp; Safety, including Personal Protective Equipment (PPE)</td>
<td>B3. The International Labour Organization (ILO)</td>
<td>3rd party audits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B19. SGS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B20. Social Accountability International (SAI)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(this list is not exhaustive). In addition, many brands have their own social compliance audits.</td>
<td></td>
</tr>
</tbody>
</table>
Figure 37
Process 7 Dyeing, setting out & sampling [overlay = traceability product transformation process]
## Table 20
**Process 7 (BPD)**

<table>
<thead>
<tr>
<th>Name of process</th>
<th>7. Dyeing, setting out &amp; sammying</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business Process Short Description</strong></td>
<td>The leather is dyed using chemical dyes (all colours) and pigments (especially white) to achieve the desired end colour and this relies on a good understanding of how dyes work along with strict controls and processes to ensure that colours between batches remain consistent. Rates of exhaustion (amount of dye taken up by the material divided by the amount of dye used) are also crucial to ensure colour fastness and light fastness (resistance to fading when exposed to light or water). Removal of excess water takes place by passing the re-tanned and dyed material through mechanical rollers.</td>
</tr>
<tr>
<td><strong>Process participants</strong></td>
<td>Tanneries, Other Product / Service Suppliers for Transformation, Inspectors / Certifiers, Other Service Providers – Waste Services / Treatment, Agent / Traders, Subcontractors, Transporter Product Guardians</td>
</tr>
<tr>
<td><strong>Input and criteria to enter/begin the process</strong></td>
<td>Input for this stage may just be movement of material from one department to another within the same facility or it could form the first process at a second tannery in the value chain. Additionally, this is a process that a tannery could sub-contract out to another facility in which case the transparency of that process should be recorded.</td>
</tr>
<tr>
<td><strong>Parallel Processes</strong></td>
<td>7.4 Inspection: Certification / Inspection of chemical &amp; legislative compliance &amp; processes can take place at the tannery or subcontractor facility at different parts of the process.</td>
</tr>
</tbody>
</table>

### Description of Activities
A step-by-step description of what happens in the process. If parallel or overlapping steps much be finished before the next step, the first two digits of the number should be the same with a third digit added.

<table>
<thead>
<tr>
<th>Description</th>
<th>Required DOCUMENTS</th>
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<th>TRACEABILITY Actions and Data required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>7.1.1 Send to Subcontractor:</strong> Send material for dyeing, setting out &amp; sammying (from BPD 6)</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td><strong>7.1.2 Planning:</strong> Place orders with subcontractor to provide dyeing, setting out and sammying services</td>
<td>Purchase Orders to subcontractor &amp; transportation product guardian</td>
<td>Orders from tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of services required, quantity / type of material, dyeing specifications, dates of collection and return to tannery, collection address, delivery address</td>
</tr>
<tr>
<td><strong>7.1.3 Receive Order:</strong> Receive order for subcontract services</td>
<td>Invoice to tannery from subcontractor</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Order confirmation for services to be carried out, quantity / type of material, dyeing specifications, dates of collection and return to tannery, collection address, delivery address</td>
</tr>
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<td>DESCRIPTION</td>
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</tr>
<tr>
<td><strong>7.1.4 Receive Order:</strong> Receive order for transportation services</td>
<td>Order confirmation to tannery</td>
<td>Order confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Order confirmation for transportation, quantity / type of material, dates of collection and return to tannery, collection address, delivery address</td>
</tr>
<tr>
<td><strong>7.1.5 Collect &amp; Transport Material:</strong> Pick up material from tannery &amp; deliver to subcontractor</td>
<td>Invoice to the tannery Delivery note to the subcontractor</td>
<td>Collection / delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection date, delivery date, quantity / type of material, collection address, destination address, return date.</td>
</tr>
<tr>
<td><strong>7.1.6 Process Material:</strong> Provide dyeing, setting out and sammying services (steps 7.2 – 7.6 below)</td>
<td>-------</td>
<td>Manual or electronic internal production system</td>
<td>Record batches and processes carried out along with materials and quantities used in accordance with tannery specifications.</td>
</tr>
<tr>
<td><strong>7.1.7 Collect &amp; Transport Material:</strong> Pick up material from subcontractor &amp; deliver back to tannery</td>
<td>Invoice to the tannery Delivery note to the tannery</td>
<td>Collection / delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection date, delivery date, quantity / type of material, collection address, destination address</td>
</tr>
<tr>
<td><strong>7.1.8 Receive Material:</strong> Material is received back at the tannery and placed back into inventory</td>
<td>Dispatch notes confirming goods received</td>
<td>Electronic or manual identification of material should be reconciled against the material sent to provide continued traceability of material production</td>
<td>Inventory of material received, to be re-registered at the tannery. Data recorded from dispatch notes containing collection date, delivery date, quantity &amp; type of material, subcontractor details, dates of movement from tannery to subcontractor and back to tannery</td>
</tr>
<tr>
<td><strong>OR:</strong></td>
<td>-------</td>
<td>-------</td>
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</tr>
<tr>
<td><strong>7.1.2 Continue In-house:</strong> Continued leather production in-house at the tannery (from BPD 6)</td>
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</tr>
<tr>
<td><strong>7.2 Planning:</strong> Planning of work and place orders with transformation suppliers</td>
<td>Purchase Orders to suppliers</td>
<td>Orders from tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of supplies required</td>
</tr>
<tr>
<td><strong>7.3.1 Chemicals Order:</strong> Order received, processed and dispatched by suppliers</td>
<td>Invoice to tannery from chemical supplier Dispatch note to accompany supplies</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note record of chemical supplies delivered Supplies added to inventory at tannery</td>
</tr>
<tr>
<td><strong>7.3.2 Ancillaries Order:</strong> Orders received, processed and dispatched by suppliers</td>
<td>Invoice to tannery from suppliers Dispatch note to accompany supplies</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note record of supplies delivered Supplies added to inventory at tannery</td>
</tr>
<tr>
<td><strong>7.4 Inspection:</strong> Certify / Inspect chemical &amp; legislative compliance &amp; processes as requested</td>
<td>Confirmation of inspection visit dates.</td>
<td>Order from brand / tannery / manufacturer: email, mobile phone SMS, WhatsApp</td>
<td>Proof of successful inspection e.g. certification or corrective measures if not successful</td>
</tr>
<tr>
<td><strong>7.5 Dyeing:</strong> Material is dyed to meet colour specifications for customers.</td>
<td>------</td>
<td>Electronic or manual internal system</td>
<td>Record electronically or manually the batches, thickness / weight and other formulations and specifications as required</td>
</tr>
<tr>
<td><strong>7.6 Setting Out / Sammying:</strong> Removal of excess water and wrinkles from material</td>
<td>------</td>
<td>Electronic or manual internal system</td>
<td>Maintain record of batches for transparency and problem-solving efficiency.</td>
</tr>
<tr>
<td><strong>7.7 Quality Control:</strong> Evaluation of material quality to approve or reject</td>
<td>Criteria for quality, method of assessment</td>
<td>Electronic of manual internal system</td>
<td>Record electronically or manually the batches, results and final destination (pass for continued production or rejected as waste)</td>
</tr>
<tr>
<td><strong>7.7.1 Reject Traceable Asset:</strong> Reject and dispose of sub-standard material</td>
<td>Criteria for disposing of waste or sub-standard material</td>
<td>Electronic of manual internal system</td>
<td>Record electronically or manually the waste disposal of material, batch, quantity,</td>
</tr>
<tr>
<td>DESCRIPTION</td>
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<td>Required OTHER INFORMATION / communication method</td>
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</tr>
<tr>
<td>7.8 Order Waste Services: In accordance with legal permits &amp; requirements</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the waste collection or service supplier: email, mobile phone SMS, WhatsApp</td>
<td>type of waste disposal required, waste service provider used</td>
</tr>
<tr>
<td>7.9 Waste Service Order: Receive and implement waste collection or service</td>
<td>Order Confirmation</td>
<td>Order confirmation from waste service provider to tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of type of waste, quantity, treatment required, collection date, destination of solid wastes, treatment for effluent</td>
</tr>
<tr>
<td>7.10.1 Move to next process: If tannery is continuing with leather transformation in situ (Go to BPD 8) or:</td>
<td>------</td>
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</tr>
<tr>
<td>7.10.2 Sell to Agent / Trader: Arrange sale contract with an agent / trader or:</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the agent / trader: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td>7.10.3 Sell to a Tannery: Arrange sale contract with a finishing tannery</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the finishing tannery: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td>7.10.2.1 Purchase Goods: Send purchase order &amp; buy material to sell on to finishing tanneries</td>
<td>Order Confirmation</td>
<td>Order confirmation from agent / trader to tannery: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td>7.10.3.1 Purchase Goods: Send purchase order &amp; buy</td>
<td>Order Confirmation</td>
<td>Order confirmation from finishing tannery to tannery:</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
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</tr>
<tr>
<td>material to finish transformation of leather</td>
<td></td>
<td>email, mobile phone SMS, WhatsApp</td>
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</tr>
<tr>
<td>7.11 Order Transportation: Arrange transportation to either finishing tannery or agent / trader</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to transporter product guardian: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity / types of material, collection address, destination address (cost?)</td>
</tr>
<tr>
<td>7.12 Receive Transport Order: Receive &amp; process transportation order &amp; confirm to the tannery.</td>
<td>Order Confirmation</td>
<td>Order confirmation from transporter product guardian to the tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity / types of material, collection address, destination address (cost?)</td>
</tr>
<tr>
<td>7.13 Collect &amp; Transport Material: Pick up material from tannery &amp; deliver to finishing tannery or agent / trader (Go to BPD 8)</td>
<td>Invoice to the tannery Delivery note to the finishing tannery or agent / trader</td>
<td>Collection / delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection date, delivery date, quantity / type of material, collection address, destination address (cost?)</td>
</tr>
</tbody>
</table>

**Output and criteria to exit the business process**

This process is usually carried out as an intermediate process within the full production of leather manufacture so would not always have an output as the material would move on naturally to the next stage of manufacturer. However, some value chains may include tanneries that subcontract this process out before selling the material on to be finished in another tannery. Tanneries may also sell material at the end of this process to finishing tanneries. The next process is documented in BPD 8

**“Common” exceptions/problems**

Poor dyes and chemicals could contain harmful substances and affect performance of material and energy efficiency / consumption

**Circular Economy related observations**

None

**Other Observations, in particular related to traceability needs for different activities**

If the material is to be sold for onward processing / production, then the continued transparency of the identification can be lost. Just putting one identifier on material at the start of the process is not enough to guarantee that the material has not been processed at least in part by non-compliant or irresponsible manufacturers.

It is also important that if a tannery is subcontracting this process out, that a record of change of temporary custodianship is also recognised and that subcontractors are also sustainably responsible and transparent.
Different regions and countries will have specific legislation around operating permits, water discharge parameters and air emissions.

<table>
<thead>
<tr>
<th>Sustainability Risks, Criteria and Verification</th>
<th>Sustainability risks (hot spots) within this process</th>
<th>Sustainability criteria and standards to address the risk</th>
<th>Verification methods for criteria and standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1. Air Pollution</td>
<td>B6. CSCB (The Brazilian Leather Certification of Sustainability)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A9. Health &amp; Safety, including Personal Protective Equipment (PPE)</td>
<td>B19. SGS</td>
<td></td>
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</tr>
<tr>
<td>A13. Water Pollution and Wastewater Management</td>
<td>(this list is not exhaustive) In addition, many brands have their own auditors and criteria including Restricted Substance Lists.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A9. Health &amp; Safety, including Personal Protective Equipment (PPE)</td>
<td>B3. The International Labour Organization (ILO)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(this list is not exhaustive) In addition, many brands have their own social compliance audits.</td>
<td>B19. SGS</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>B20. Social Accountability International (SAI)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(this list is not exhaustive) In addition, many brands have their own social compliance audits.</td>
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</tr>
</tbody>
</table>

3rd party audits
Self-assessment / self-evaluation Certification Programmes
Figure 38
Process 8 Drying, conditioning & finishing [overlay = traceability product transformation process]
Table 21  
**Process 8 (BPD)**

<table>
<thead>
<tr>
<th>Name of process</th>
<th>8. Drying, conditioning &amp; finishing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business process short description</strong></td>
<td>There are two main methods of drying leather – air drying where the leather is suspended on racks above the tannery floor (sometimes combined with passing the leather through drying tunnels with controlled temperature and humidity) or vacuum drying where the moisture is removed by heating the leather and suctioning up the water vapor. Other methods include pasting (where the leather is pasted on a smooth surface and heated in a drying tunnel) and toggling (where the leather is stretched and fixed on a metallic frame before heating in a drying tunnel). After drying, the leather is mechanically staked (a pummelling action) to soften and improve the appearance of the material. Finishing the leather can involve final treatments to suit the end product requirements such as embossing, printing and other techniques, including adding a shine or dulling down the appearance of the leather.</td>
</tr>
<tr>
<td><strong>Process participants</strong></td>
<td>Tanneries, Other Product / Service Suppliers for Transformation, Inspectors / Certifiers, Other Service Providers – Waste Services / Treatment, Agent / Traders, Subcontractors, Manufacturers Product / Garment, Brand Owners / Retailers, Transporter Product Guardians</td>
</tr>
<tr>
<td><strong>Input and criteria to enter/begin the process</strong></td>
<td>Input for this stage may just be movement of material from one department to another within the same facility or it could form the first process at a finishing tannery in the value chain. Additionally, this is a process that a tannery could sub-contract out to another facility in which case the transparency of that process should be recorded.</td>
</tr>
<tr>
<td><strong>Parallel Processes</strong></td>
<td>8.4 Inspection: Certification / Inspection of chemical &amp; legislative compliance &amp; processes can take place at the tannery or subcontractor facility at different parts of the process.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of Activities</th>
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</tr>
</thead>
<tbody>
<tr>
<td>8.1.1 Send to Subcontractor:</td>
<td>Send material for drying, conditioning &amp; finishing (from BPD 7)</td>
<td>------</td>
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</tr>
<tr>
<td>8.1.2 Planning:</td>
<td>Place orders with subcontractor to provide drying, conditioning &amp; finishing services</td>
<td>Purchase Orders to subcontractor &amp; transportation product guardian</td>
<td>Orders from tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of services required, quantity / type of material, finishing specifications, dates of collection and return to tannery, collection address, delivery address</td>
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<tr>
<td>8.1.3 Receive Order:</td>
<td>Receive order for subcontract services</td>
<td>Invoice to tannery from subcontractor Order confirmation to tannery</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
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<td>with a third digit added.</td>
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</tr>
<tr>
<td><strong>8.1.4 Receive Order:</strong> Receive order for transportation services</td>
<td>Order confirmation to tannery</td>
<td>Order confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Order confirmation for transportation, quantity / type of material, dates of collection and return to tannery, collection address, delivery address</td>
<td></td>
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<tr>
<td><strong>8.1.5. Collect &amp; Transport Material:</strong> Pick up material from tannery &amp; deliver to subcontractor</td>
<td>Invoice to the tannery Delivery note to the subcontractor</td>
<td>Collection / delivery confirmations: email, mobile phone SMS, WhatsApp</td>
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<td>Record batches and processes carried out along with materials and quantities used in accordance with tannery specifications.</td>
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</tr>
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<td><strong>8.1.7. Collect &amp; Transport Material:</strong> Pick up material from subcontractor &amp; deliver back to tannery</td>
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<td>Dispatch notes confirming goods received</td>
<td>Electronic or manual identification of material should be reconciled against the material sent to provide continued traceability of material production</td>
<td>Inventory of material received, to be re-registered at the tannery. Data recorded from dispatch notes containing collection date, delivery date, quantity &amp; type of material, subcontractor details, dates of movement from tannery to subcontractor and back to tannery</td>
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</tr>
</tbody>
</table>

**OR:**

<p>| <strong>8.1.2 Continue In-house:</strong> Continued leather production in-house at the tannery | | | |
| | | | |</p>
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<td><strong>8.3.2 Ancillaries Order:</strong> Orders received, processed and dispatched by suppliers</td>
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<td><strong>8.4 Inspection:</strong> Certify / Inspect chemical &amp; legislative compliance &amp; processes as requested</td>
<td>Confirmation of inspection visit dates.</td>
<td>Order from brand / tannery / manufacturer: email, mobile phone SMS, WhatsApp</td>
<td>Proof of successful inspection e.g. certification or corrective measures if not successful</td>
</tr>
<tr>
<td><strong>8.5 Drying, Conditioning, Softening:</strong> Material is dried, conditioned and softened</td>
<td>------</td>
<td>Electronic or manual internal system</td>
<td>Record electronically or manually the batches, thickness / weight and other formulations and specifications as required</td>
</tr>
<tr>
<td><strong>8.6 Finishing:</strong> Final finishing of material, quality grading and packaging</td>
<td>------</td>
<td>Electronic or manual internal system</td>
<td>Maintain record of batches for transparency and problem-solving efficiency.</td>
</tr>
<tr>
<td><strong>8.7 Quality Control:</strong> Evaluation of material quality to approve or reject</td>
<td>Criteria for quality, method of assessment</td>
<td>Electronic of manual internal system</td>
<td>Record electronically or manually the batches, results and final destination (pass for continued production or rejected as waste)</td>
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<td><strong>8.7.1 Reject Traceable Asset:</strong> Reject and dispose of sub-standard material</td>
<td>Criteria for disposing of waste or sub-standard material</td>
<td>Electronic of manual internal system</td>
<td>Record electronically or manually the waste disposal of material, batch, quantity, type of waste disposal required, waste service provider used</td>
</tr>
<tr>
<td><strong>8.8 Order Waste Services:</strong> In accordance with legal permits &amp; requirements</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the waste collection or service supplier: email, mobile phone SMS, WhatsApp</td>
<td>Record of type of waste, quantity, treatment required, collection date, destination of solid wastes, treatment for effluent</td>
</tr>
<tr>
<td><strong>8.9 Waste Service Order:</strong> Receive and implement waste collection or service</td>
<td>Order Confirmation</td>
<td>Order confirmation from waste service provider to tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of type of waste, quantity, treatment required, collection date, destination of solid wastes, treatment for effluent</td>
</tr>
<tr>
<td><strong>8.10.1 Sell to Manufacturer Product / Garment:</strong> Arrange sale contract with a product / garment manufacturer or:</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the agent / trader: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td><strong>8.10.2 Sell to Agent / Trader:</strong> Arrange sale contract with an agent / trader or:</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the agent / trader: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td><strong>8.10.3 Sell to a Brand Owner / Retailer:</strong> Arrange sale contract with a brand owner / retailer</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to the finishing tannery: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td><strong>8.10.1.1 Purchase Goods:</strong> Send purchase order &amp; buy leather to manufacture products / garments</td>
<td>Order Confirmation</td>
<td>Order confirmation from agent / trader to tannery: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
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<tr>
<td><strong>8.10.2.1 Purchase Goods:</strong> Send purchase order &amp; buy leather to sell on to manufacturers product / garment or brand owners / retailers</td>
<td>Order Confirmation</td>
<td>Order confirmation from agent / trader to tannery: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td><strong>8.10.3.1 Purchase Goods:</strong> Send purchase order &amp; buy leather to directly manufacture products / garments at brand owner/ retailer</td>
<td>Order Confirmation</td>
<td>Order confirmation from finishing tannery to tannery: email, mobile phone SMS, WhatsApp</td>
<td>Confirmation of quantity / types of material to be sold, collection date, delivery date, destination address (cost?)</td>
</tr>
<tr>
<td><strong>8.11 Order Transportation:</strong> Arrange transportation to either specified location depending on purchaser of leather</td>
<td>Purchase Order</td>
<td>Purchase order from tannery to transporter product guardian: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity / types of material, collection address, destination address (cost?)</td>
</tr>
<tr>
<td><strong>8.12 Receive Transport Order:</strong> Receive &amp; process transportation order &amp; confirm to the tannery.</td>
<td>Order Confirmation</td>
<td>Order confirmation from transporter product guardian to the tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity / types of material, collection address, destination address (cost?)</td>
</tr>
<tr>
<td><strong>8.13 Collect &amp; Transport Material:</strong> Pick up leather from tannery &amp; deliver to manufacturer, agent / trader or brand / retailer (Go to BPD 9)</td>
<td>Invoice to the tannery Delivery note to the purchasing organisation</td>
<td>Collection / delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection date, delivery date, quantity / type of material, collection address, destination address (cost?)</td>
</tr>
</tbody>
</table>

Output and criteria to exit the business process

“Common” exceptions/problems

This is the last of the leather manufacturing processes and the end of the direct responsibility for the leather. The next processes fall into the downstream category that involves the manufacture of products / garments, order fulfilment and retail, consumption and post-consumption. The next downstream process is documented in BPD 9

None
### Circular Economy related observations
Circularity of material can be impacted by the type of finish applied to the leather

### Other Observations, in particular related to traceability needs for different activities
At this change of control and responsibility, continuation of the traceability identifier can be lost through cutting and manufacturing. Actors in these downstream processes should have a system to continue the chain of custody if traceability and transparency is to be preserved through to the consumer and beyond.

Different regions and countries will have specific legislation around operating permits, water discharge parameters and air emissions.

<table>
<thead>
<tr>
<th>Sustainability Risks (hot spots) within this process</th>
<th>Sustainability criteria and standards to address the risk</th>
<th>Verification methods for criteria and standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>A8. Greenhouse Gas Emissions</td>
<td>(this list is not exhaustive)</td>
<td></td>
</tr>
<tr>
<td>A9. Health &amp; Safety, including Personal Protective Equipment (PPE)</td>
<td>In addition, many brands have their own auditors and criteria including Restricted Substance Lists.</td>
<td></td>
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<tr>
<td>A12. Solid Production Waste</td>
<td>General:</td>
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<tr>
<td>A13. Water Pollution and Wastewater Management</td>
<td>Index Benchmarking with B21. Sustainable Apparel Coalition (SAC)</td>
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<tr>
<td>A9. Health &amp; Safety, including Personal Protective Equipment (PPE)</td>
<td>(Leather Impact Accelerator)</td>
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<td>A11. Labour Risks</td>
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<tr>
<td>Sustainability risks (hot spots) within this process</td>
<td>Sustainability criteria and standards to address the risk</td>
<td>Verification methods for criteria and standards</td>
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<tr>
<td>(this list is not exhaustive). In addition, many brands have their own social compliance audits.</td>
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</tbody>
</table>
Figure 39
Process 9 Product assembly [overlay = traceability product transformation process]
### Table 22

**Process 9 (BPD)**

<table>
<thead>
<tr>
<th>Name of process</th>
<th>9. Product assembly</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business process short description</strong></td>
<td>Transformation into the finished product (apparel, handbags, shoes, belting, accessories) may take place at a brand owner / retailer facility or at an intermediary factory. The product assembly can involve re-finishing the leather to add effects or enhance durability. The leather is cut out, sewn together, backed, punched, etched, or moulded to take on the shape of the final product.</td>
</tr>
<tr>
<td><strong>Process participants</strong></td>
<td>Manufacturers Product / Garment, Other Product / Service Suppliers for Transformation, Inspectors / Certifiers, Other Service Providers – Waste Services / Treatment, Agent / Traders, Brand Owners / Retailers, Transporter Product Guardians</td>
</tr>
<tr>
<td><strong>Input and criteria to enter/begin the process</strong></td>
<td>Input for this stage will be the receipt of the finished leather material into product manufacturing facilities where the leather will be transformed into the final article for sale. This could be a product manufacturing facility working on behalf of multiple brand owners / retailers or it could be a product manufacturer that is part of (or owned by) the brand owners / retailers.</td>
</tr>
<tr>
<td><strong>Parallel Processes</strong></td>
<td>9.6 Inspection: Inspection / Certification of chemical &amp; legislative compliance &amp; processes can take place at a product manufacturing facility at different parts of the process.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of Activities</th>
<th>9.1.1 Order Products: Brand owner / retailer places order with product manufacturer or:</th>
<th>Required DOCUMENTS</th>
<th>Required OTHER INFORMATION / communication method</th>
<th>TRACEABILITY Actions and Data required</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1.2 Order Products: Agent / Trader places order with product manufacturer</td>
<td>Purchase Orders to product manufacturers for articles to be made</td>
<td>Orders from brand / retailer: email, mobile phone SMS, WhatsApp</td>
<td>Record of articles required, quantity, type, specification., delivery date(s), delivery address(es)</td>
<td></td>
</tr>
<tr>
<td>9.2 Planning: Planning of order fulfilment &amp; ordering of materials with transformation suppliers</td>
<td>Purchase Orders to suppliers</td>
<td>Orders from product manufacturer: email, mobile phone SMS, WhatsApp</td>
<td>Record of supplies required</td>
<td></td>
</tr>
<tr>
<td>9.3.1 Transformation Supplies Order: Order received, processed and dispatched by suppliers</td>
<td>Invoice to product manufacturer from supplier Dispatch note to accompany supplies</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note record of supplies delivered Supplies added to inventory at product manufacturer</td>
<td></td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
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</tr>
<tr>
<td><strong>9.3.2 Components Supplies</strong>&lt;br&gt;Order: Orders received, processed and dispatched by suppliers</td>
<td>Invoice to product manufacturer from suppliers&lt;br&gt;Dispatch note to accompany supplies</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note record of component supplies delivered&lt;br&gt;Component supplies added to inventory at product manufacturer</td>
<td></td>
</tr>
<tr>
<td><strong>9.4 Receive Leather</strong>&lt;br&gt;Inventory: Receive leather and put into inventory</td>
<td>Invoice to product manufacturer from tannery or agent/trader&lt;br&gt;Dispatch note to accompany leather</td>
<td>Invoice from tannery: email, mobile phone SMS, WhatsApp&lt;br&gt;Electronic or manual identification of leather if available should be captured. If not available, a new identifier could be added?</td>
<td>Inventory of leather received to be registered at the product manufacturer. Data recorded from dispatch notes containing delivery date, quantity, type of leather. Other information could be captured at inventory including intended purpose, customer and other specifications such as grade, batch, colour, etc</td>
<td></td>
</tr>
<tr>
<td><strong>9.5 Receive Supplies:</strong> Receipt of transformation and component supplies to stock inventory</td>
<td>Dispatch notes to accompany supplies</td>
<td>Invoice to product manufacturer from suppliers: email, mobile phone SMS, WhatsApp</td>
<td>Inventory of transformation and component materials to be registered at the product manufacturer and added to inventory</td>
<td></td>
</tr>
<tr>
<td><strong>9.6 Inspection:</strong> Certify / Inspect chemical &amp; legislative compliance &amp; processes as requested</td>
<td>Confirmation of inspection visit dates.</td>
<td>Order from brand / tannery / manufacturer: email, mobile phone SMS, WhatsApp</td>
<td>Proof of successful inspection e.g. certification or corrective measures if not successful</td>
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<tr>
<td><strong>9.7 Product Manufacture:</strong> Transformation of leather and components into finished article</td>
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<td>Electronic or manual internal system</td>
<td>Record electronically or manually the quantities, batches, colours and other formulations and specifications as required</td>
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</tr>
<tr>
<td><strong>9.8 Quality Control:</strong> Finished products are evaluated for quality to approve or reject</td>
<td>Criteria for quality, method of assessment</td>
<td>Electronic or manual internal system</td>
<td>Maintain record of any quality issues for transparency and problem-solving efficiency.</td>
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</tr>
<tr>
<td><strong>9.8.1 Reject Traceable Asset:</strong> Reject and dispose of sub-standard material</td>
<td>Criteria for disposing of waste or sub-standard material</td>
<td>Electronic of manual internal system</td>
<td>Record electronically or manually the waste disposal of material, batch, quantity, type of waste disposal required, waste service provider used</td>
<td></td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
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<tr>
<td><strong>9.9 Packaging:</strong> Finished products are branded and packaged</td>
<td>------</td>
<td>Electronic or manual internal system</td>
<td>Maintain record of any quantities and reconciliation against customer orders</td>
<td></td>
</tr>
<tr>
<td><strong>9.10 Order Waste Services:</strong> In accordance with legal permits &amp; requirements</td>
<td>Purchase Order</td>
<td>Purchase order from product manufacturer to the waste collection or service supplier: email, mobile phone SMS, WhatsApp</td>
<td>Record of type of waste, quantity, treatment required, collection date, destination of solid wastes, treatment for effluent</td>
<td></td>
</tr>
<tr>
<td><strong>9.11 Waste Service Order:</strong> Receive and implement waste collection or service</td>
<td>Order Confirmation</td>
<td>Order confirmation from waste service provider to product manufacturer: email, mobile phone SMS, WhatsApp</td>
<td>Record of type of waste, quantity, treatment required, collection date, destination of solid wastes, treatment for effluent</td>
<td></td>
</tr>
<tr>
<td><strong>9.12.1 Dispatch to Warehouse / Store:</strong> Arrange dispatch direct to a brand owner / retailer warehouse or store or:</td>
<td>Delivery instructions from brand owner / retailer</td>
<td>Electronic or manual internal system that holds data from purchase order received from brand owner / retailer</td>
<td>Update the electronic or manual internal system with product fulfilment information</td>
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</tr>
<tr>
<td><strong>9.12.2 Dispatch to Brand or Agent:</strong> Arrange dispatch to a brand owner / retailer or an agent / trader</td>
<td>Delivery instructions from brand owner / retailer or agent / trader</td>
<td>Electronic or manual internal system that holds data from purchase order received from brand owner / retailer</td>
<td>Update the electronic or manual internal system with product fulfilment information</td>
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</tr>
<tr>
<td><strong>9.13 Order Transportation:</strong> Arrange transportation to either specified location depending on purchaser of products</td>
<td>Purchase Order</td>
<td>Purchase order from product manufacturer to transporter product guardian: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity / types of product, collection address, destination address (cost?)</td>
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</tr>
<tr>
<td><strong>9.14 Receive Transport Order:</strong> Receive &amp; process transportation order &amp; confirm to the product manufacturer.</td>
<td>Order Confirmation</td>
<td>Order confirmation from transporter product guardian to the tannery: email, mobile phone SMS, WhatsApp</td>
<td>Record of collection date, delivery date, quantity / types of material, collection address, destination address (cost?)</td>
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<tr>
<td><strong>9.15 Collect &amp; Transport Material:</strong> Pick up leather from tannery &amp; deliver to brand owner / retailer or agent / trader (Go to BPD 10)</td>
<td>Invoice to the product manufacturer&lt;br&gt;Delivery note to the purchasing organisation</td>
<td>Collection / delivery confirmations: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note recording collection date, delivery date, quantity / type of material, collection address, destination address (cost?)</td>
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</tbody>
</table>

**Output and criteria to exit the business process**
This is the last process that deals with production and products / garments could have coding embedded to allow continued identification into the consumer facing processes that follow as documented in BPD 10

**“Common” exceptions/problems**
Complexity arises now with a mix of component parts that will go into making up products / garments for sale to consumers. Problem solving capabilities become more difficult (for RSL for example) as external conditions / factors could impact.

**Circular Economy related observations**
Circularity of product manufacturer can be enhanced by re-using component parts from recycled items.

**Other Observations, in particular related to traceability needs for different activities**
Unless the product manufacturer is owned by, or is part of a brand owner / retailer, a change of product ownership will take place, and this creates a possible break in the continued transparency. Unless brand owners / retailers or agents / traders accurately record and use the same identifiers (if not an embedded marker such as DNA or Ceramic codes) then once the product leaves the manufacturer there is a potential for traceability to be lost.

**Related laws, rules, regulations**
Different regions and countries will have specific legislation around operating permits and air emissions.

**Sustainability Risks, Criteria and Verification**

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<td><strong>A13. Water Pollution and Wastewater Management</strong></td>
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<td>3rd party audits Self-assessment / self-evaluation Certification Programmes</td>
</tr>
<tr>
<td><strong>A14. Water Use</strong></td>
<td><strong>General:</strong> Index Benchmarking with <strong>B21. Sustainable Apparel Coalition (SAC)</strong> NB: Whilst there is testing against Restricted Substance Lists (RSLs) in finished product, there are no widely known certification schemes specifically designed for assessing environmental compliance of product manufacturers.</td>
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</table>
Figure 40
Process 10 Order fulfilment / retail [overlay = traceability product guardian process]
### Table 23  
**Process 10 (BPD)**

<table>
<thead>
<tr>
<th>Name of process</th>
<th>10. Order fulfilment / retail</th>
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<tbody>
<tr>
<td>Business process short description</td>
<td>Product sale to consumers and end users. The in-life (consumer use) of leather is characteristically devoid of washing cycles. Leather, unlike textiles, does not generally get washed, so avoids water use and energy consumption use in-life.</td>
</tr>
<tr>
<td>Process participants</td>
<td>Brand Owners / Retailers, Stores, Warehousers, Other Product / Service Suppliers, Transporter Product Guardians, Other Service Providers – Waste Services / Treatment, Consumers</td>
</tr>
<tr>
<td>Input and criteria to enter/begin the process</td>
<td>Input for this stage will be the receipt of the finished leather products / garments from product manufacturing facilities into either stores directly or to warehousing for store delivery or direct consumer delivery.</td>
</tr>
<tr>
<td>Parallel Processes</td>
<td>None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of Activities</th>
<th>10.1 Planning: Arrange orders to stores with packaging, distribution &amp; transportation</th>
<th>Required DOCUMENTS</th>
<th>Required OTHER INFORMATION / communication method</th>
<th>TRACEABILITY Actions and Data required</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.2.1 Receive products:</td>
<td>Dispatch notes to accompany products</td>
<td>Order details from brand owner / retailer: email, mobile phone SMS, WhatsApp</td>
<td>Inventory of products to be registered at warehouse</td>
<td></td>
</tr>
<tr>
<td>Or: (from BPD 9)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.3.1 Order from Suppliers:</td>
<td>Invoice to warehouser from supplier</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note record of supplies delivered</td>
<td></td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------</td>
<td>-------------------------------------------------</td>
<td>----------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Or:</td>
<td>Dispatch note to accompany supplies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>10.3.2 Order from Suppliers:</strong> Stores place order for packaging and waste providers</td>
<td>Invoice to store from supplier Dispatch note to accompany supplies</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note record of supplies delivered Supplies added to inventory at store</td>
<td></td>
</tr>
<tr>
<td><strong>10.4.1 Packaging Order:</strong> Order received, processed and dispatched by supplier</td>
<td>Invoice from packaging supplier Dispatch note to accompany packaging supplies</td>
<td>Order and delivery confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note record of packaging supplies delivered Packaging supplies added to inventory</td>
<td></td>
</tr>
<tr>
<td><strong>10.4.2 Waste Service Order:</strong> Order received, processed and dispatched by waste service supplier</td>
<td>Invoice from waste service supplier</td>
<td>Order confirmation: email, mobile phone SMS, WhatsApp</td>
<td>Record of waste service carried out, dates of collection</td>
<td></td>
</tr>
<tr>
<td><strong>10.5 Sell to consumer:</strong> Sale of products direct to consumers</td>
<td>Receipt of sale</td>
<td>Receipt provided as a till receipt or an electronic receipt: email, mobile phone SMS, WhatsApp</td>
<td>Product inventory maintained by electronic process through till stock system or manually. Product item tracked with traceability identifier?</td>
<td></td>
</tr>
<tr>
<td><strong>10.6 Purchase Products:</strong> Purchase of products direct from store or online</td>
<td>Receipt of purchase</td>
<td>Receipt provided as a till receipt or an electronic receipt: email, mobile phone SMS, WhatsApp</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td><strong>10.7 Arrange Deliveries:</strong> Send delivery instruction to transporter product guardian as required</td>
<td>Dispatch notes to accompany products</td>
<td>Invoice from transporter product guardians: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note of products to be delivered including collection address, delivery address, date of delivery</td>
<td></td>
</tr>
<tr>
<td><strong>10.8.1 Deliver Product:</strong> Transporter product guardian delivers products from</td>
<td>Dispatch notes to accompany products</td>
<td>Invoice from transporter product guardians: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note of products to be delivered including collection address, delivery address, date of delivery</td>
<td></td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------</td>
<td>------------------------------------------------</td>
<td>----------------------------------------</td>
<td></td>
</tr>
<tr>
<td>warehouse to stores for direct sale to consumers</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>10.8.2 Deliver Product:</strong> Transporter product guardian delivers product from warehouse direct to consumers for online sales</td>
<td>Dispatch notes to accompany products</td>
<td>Invoice from transporter product guardians: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch note of products to be delivered including collection address, delivery address, date of delivery</td>
<td></td>
</tr>
<tr>
<td><strong>10.9 Receive Products:</strong> Consumer receives products for use (Go to BPD 11)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Output and criteria to exit the business process**
The output at this process is the purchase of the product by the consumer for in-life use.

**“Common” exceptions/problems**
Once the product is in the ownership of consumers, elements for consideration are intended use, washing, damage, care and disposal.

**Circular Economy related observations**
Circularity options could form part of the brand responsibility to educate and inform their consumers about responsible use, reuse and recycling properties of the products they are buying.

**Other Observations, in particular related to traceability needs for different activities**
Use of traceable data on swing tags and care labels could encourage consumers to start to link back their purchases.

**Related laws, rules, regulations**
Different regions and countries will have specific legislation around retail permits and licences.

**Sustainability risks (hot spots) within this process**
Unlike other textiles, leather garments are not generally washed in a washing machine.

**Sustainability criteria and standards to address the risk**
Brands / Retailers in general will have their own ESG policies and guidelines and many will
<table>
<thead>
<tr>
<th>Sustainability Risks, Criteria and Verification</th>
<th>Sustainability risks (hot spots) within this process</th>
<th>Sustainability criteria and standards to address the risk</th>
<th>Verification methods for criteria and standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depending on the treatment and care of the leather product there is a very low environmental impact for in-use products.</td>
<td>subscribe to membership of organisations that promote exemplary standards such as: Fair Trade, Leather Working Group, ZDHC, Textile Exchange. Many brands / retailers will also have their own Restricted Substance Lists (RSLs) for finished product and will ensure testing is carried out, with some employing their own auditors to verify compliance and standards are met.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A7. Energy Consumption  
A8. Greenhouse Gas Emissions  
A9. Health & Safety, including Personal Protective Equipment (PPE)  
A12. Solid Production Waste  
A14. Water Use
Figure 41
Process 11 Post consumption [overlay = traceability post-consumer process]
<table>
<thead>
<tr>
<th>Name of process</th>
<th>Name of business process activity (use case)</th>
<th>Process participants</th>
<th>Input and criteria to enter/begin the process</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. Post-consumption</td>
<td>This could be re-cycling, re-use, re-purposing or waste disposal. Leather is a good example of a material that can be recycled and reused and there are organisations who specialise in transformation and restoration of leather.</td>
<td>Consumers, Charity Re-use / Re-sale, Re-purpose Transformation Suppliers, Re-use / Recycling Transformation Suppliers, Transporter Product Guardians</td>
<td>Input for this stage will be the first consumer end of life for the product. There could be a second life of the product or of the primary material of the original product</td>
</tr>
<tr>
<td>Parallel Processes</td>
<td>None</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description of Activities</th>
<th>Description</th>
<th>Required DOCUMENTS</th>
<th>Required OTHER INFORMATION / communication method</th>
<th>TRACEABILITY Actions and Data required</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.1 Product End of Life: Consumer no longer uses product (from BPD 10)</td>
<td></td>
<td></td>
<td></td>
<td>Decision made by consumer on disposal of product will determine the outcome on whether there is any onward traceability possible</td>
</tr>
<tr>
<td>11.2.1 Product to Waste: Consumer puts product in bin (end of traceability) Or:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.2.2 Product Return to Brand Owner / Retailer: Product is taken to brand / retailer’s own recycling boxes in store</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.2.2.1 Receive Product: Brand Owner / Retailer</td>
<td></td>
<td></td>
<td></td>
<td>If embedded identifiers are intact, a system of recording the returned item could be adopted.</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------</td>
<td>-------------------------------------------------</td>
<td>---------------------------------------</td>
<td></td>
</tr>
<tr>
<td>receives product for re-cycling / re-use and decides on outcome</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **11.2.2.2 Product to Waste:** Product not suitable for recycling / re-use  
(end of traceability) | | | |
| **Or:** | | | |
| **11.2.2.3 Product to Recycling / Re-use:** Product sent for recycling / re-use  
(go back to production) | | | |
| | | | If identifiers are embedded or recorded, then this data could be transferred back to the recycling / re-use provide for continued use. |
| **11.2.3 Product Sent to Re-Purpose:** Consumer sends product to a company for repurpose or re-use | | | |
| **11.2.3.1 Receive Product:** Re-purpose company receives product and decides on outcome | | | If embedded identifiers are intact, a system of recording the returned item could be adopted. |
| | | | |
| **11.2.3.2 Product to Waste:** Product not suitable for recycling / re-use  
(end of traceability) | | | |
<p>| <strong>Or:</strong> | | | |
| <strong>11.2.2.3 Product Re-purposed:</strong> Product sent for re-purpose and re-sold to consumer | | | If identifiers are embedded or recorded, then this data could be transferred back to the recycling / re-use provide for continued use. |</p>
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>Required DOCUMENTS</th>
<th>Required OTHER INFORMATION / communication method</th>
<th>TRACEABILITY Actions and Data required</th>
</tr>
</thead>
<tbody>
<tr>
<td>(go back to BPD10) Or:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>11.2.2.4 Product Re-use:</strong> Product sent for recycling (go back to 11.2.2.1)</td>
<td></td>
<td></td>
<td>If identifiers are embedded or recorded, then this data could be transferred back to the recycling / re-use provide for continued use.</td>
</tr>
<tr>
<td><strong>11.2.4 Product Given to Charity for Re-Use:</strong> Consumer gives product to charity for sale or re-use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>11.2.4.1 Receive Product:</strong> Charity receives product to either sell or donate and decides on outcome</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>11.2.4.2 Product to Waste:</strong> Product not suitable for resale or donation (end of traceability) Or:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>11.2.4.3 Product Resold:</strong> Product resold to consumer (go back to BPD10) Or:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>11.2.2.4 Product Re-use:</strong> Product sent for recycling (go back to 11.2.2.1)</td>
<td></td>
<td></td>
<td>If identifiers are embedded or recorded, then this data could be transferred back to the recycling / re-use provide for continued use.</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required DOCUMENTS</td>
<td>Required OTHER INFORMATION / communication method</td>
<td>TRACEABILITY Actions and Data required</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------------</td>
<td>-----------------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td><strong>11.3 Transportation Orders:</strong> Transportation as required between post-consumption actors</td>
<td>Purchase Orders, Invoices</td>
<td>Purchase Order / Invoices: email, mobile phone SMS, WhatsApp</td>
<td>Dispatch / delivery notes with product items, quantity, collection address, delivery address, dates of collection and delivery</td>
</tr>
</tbody>
</table>

**Output and criteria to exit the business process**

The output at this process is dependent on many factors that start with the consumers choice of whether to discard to trash, send to recycling / re-purpose / re-use or send to charity.

**“Common” exceptions/problems**

A lack of control or influence over consumer behaviour currently.

**Circular Economy related observations**

Circularity options will be dependent upon the consumer choices at end of life and upon the treatments applied to the leather which will impact whether it can be truly circular. Infrastructure is necessary to encourage consumer thought patterns towards a more circular lifecycle of consumption.

**Other Observations, in particular related to traceability needs for different activities**

No reliable method of maintaining traceability once a product has left the ownership of the brand owner / retailer unless the item is returned to the brand owner / retailer directly and holds embedded transparency or sustainability data.

**Related laws, rules, regulations**

Unknown

**Sustainability Risks, Criteria and Verification**

<table>
<thead>
<tr>
<th>Sustainability risks (hot spots) within this process</th>
<th>Sustainability criteria and standards to address the risk</th>
<th>Verification methods for criteria and standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>A7. Energy Consumption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A8. Greenhouse Gas Emissions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A9. Health &amp; Safety, including Personal Protective Equipment (PPE)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A12. Solid Production Waste</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A14. Water Use</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainability risks (hot spots) within this process</td>
<td>Sustainability criteria and standards to address the risk</td>
<td>Verification methods for criteria and standards</td>
</tr>
<tr>
<td>-----------------------------------------------------</td>
<td>--------------------------------------------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Unlike other textiles, leather garments are inherently suitable for biodegradability (subject to types of production and treatments applied). It must be recognised that component elements used for making up the product may not always be suitable for biodegradability and this is an area for brand owners / retailers to consider in the design and concept stage of products and in the sourcing of raw materials. Recycling or re-purposing will also create some new production impacts that would be considered as part of the Lifecycle Analysis.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Conclusion

Research and existing proof-of-concept projects and implementations demonstrate that by combining a number of tools together and by improving communication between the upstream and downstream actors within value chains, it is possible to develop a robust and credible system of traceability that provides transparency and supports sustainable practices within the garment and footwear sectors.

It is important to recognise that there are many regional variances in the ability to adopt these approaches. As a result, the implementation methodologies adopted by a value chain need to reflect the different implementation speeds and mechanisms that are feasible and most appropriate for different value-chain partners. It will also be important to ensure that intergovernmental organisations work together with public and private sector organisations to ensure success.

BPA can help implementors to identify possible sources of data in different value chains that are at different levels of development.

There are examples of good technologies, solutions and tools available to support the implementation of a traceability and transparency system, however it is clear that there is no one solution that works for everyone from farm to post-consumption.

In part 2 there are specific analyses for the leather value chain, looking both at the sectoral value chain and how the generic business processes for traceability and transparency outlined in this document can be applied to them.

By drawing on existing business process analyses for the leather and textile value chains and understanding the varying abilities within regional / geographic areas to trace raw materials, it is hoped that the UNECE Traceability and Transparency standards will provide an open-source mechanism that can be adapted according to specific regional needs.

Through education, awareness building and improved methods for the exchange and recording of data, it is possible to create the greater visibility into value chain conditions that are needed in order to stimulate improvements in sustainability.

In addition, through example, it is hoped that an accelerated adoption of the UNECE and UN/CEFACT Recommendation and standards in support of traceability and transparency will assist others to develop methodologies and systems that can be accessible globally and ensure the continued inclusion of all stakeholders in garment and leather value chains, including low-income countries, MSMEs, women and other vulnerable groups.
### Annex 1

**Example of BPA list of Document/Information Exchanges**

<table>
<thead>
<tr>
<th>Collection status</th>
<th>Number</th>
<th>Name</th>
<th>Description</th>
<th>Process(es) using document</th>
<th>Count</th>
<th>Failure of document</th>
<th>Prepared by</th>
<th>Transaction specific (Y/N)</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you have a physical or electronic copy of the document, put the name of the document or electronic file.</td>
<td>A unique reference number for the document. This number should also be used in the data elements spreadsheet.</td>
<td>This should be the name of the document as you refer to it in the process descriptions. If a different term is used by professionals to refer to it if you can insert it in brackets. Explain in your words the function of the document.</td>
<td>[Detal the processes of your use case in which the document is used. Used can have different meanings. Aspecifily if it is created, presented, annotated, or submitted and inform whether the document is an electronic document, a paper document (original or with stamp, signature etc), or a scanned copy. 1) Presented: it is physically given to an actor on the system and will get a back or the scanned and upgraded one. 2) Submitted: include the original or the copy it is handed over and not returned. 3) Annotated means that additional information is added to the document (electronic or physical). This can be a signature, a stamp or QR code, or other marks by an official. Total Number of processes: Inform whether the purpose of the document is commercial (private) or regulatory (public)</td>
<td>Export 1.1 Export 2.1 Export 3.1 Export 3.2 Export 3.3 Export 3.4 Export 3.5</td>
<td>Yes</td>
<td>Exporter</td>
<td>Exporter broker</td>
<td>Yes</td>
<td>Exporter</td>
</tr>
<tr>
<td>Export invoice</td>
<td>1</td>
<td>Invoice</td>
<td>Trade agreement between supplier and purchaser</td>
<td>Created Presented Submitted Presented x Submitted</td>
<td>4</td>
<td>Commercial document</td>
<td>Exporter</td>
<td>Exporter broker</td>
<td>Yes</td>
</tr>
<tr>
<td>Export CMR</td>
<td>2</td>
<td>CMR</td>
<td>Shipping document</td>
<td>Created Presented Presented x Submitted</td>
<td>4</td>
<td>Commercial document</td>
<td>Exporter</td>
<td>Exporter broker</td>
<td>Yes</td>
</tr>
<tr>
<td>Export/Request for Radiation Certificate</td>
<td>3</td>
<td>Request for Radiation Certificate</td>
<td>Request for certificate proving that the goods have passed an inspection for possible radiation</td>
<td>Created Submitted x x x x</td>
<td>1</td>
<td>Regulatory document</td>
<td>Exporter</td>
<td>Exporter broker</td>
<td>Yes</td>
</tr>
<tr>
<td>Export radiation Certificate</td>
<td>3</td>
<td>Radiation Certificate</td>
<td>Certificate proving that the goods have passed an inspection for possible radiation</td>
<td>Created Presented Submitted</td>
<td>3</td>
<td>Regulatory document</td>
<td>Certification company</td>
<td>Exporter broker</td>
<td>Yes</td>
</tr>
<tr>
<td>Export export</td>
<td>custom declaration</td>
<td>4</td>
<td>Export custom declaration</td>
<td>Export Goods Declaration submitted to Customs</td>
<td>Created Submitted</td>
<td>1</td>
<td>Regulatory document</td>
<td>Exporter broker</td>
<td>Exporter broker</td>
</tr>
<tr>
<td>Export/EUR</td>
<td>request</td>
<td>4</td>
<td>EUR request and document (case covered)</td>
<td>Document that declares preferential origin of the goods. The EUR1 form is also the document used to request the issuance of the EUR1.</td>
<td>Created Presented Presented x</td>
<td>3</td>
<td>Regulatory document</td>
<td>Exporter broker</td>
<td>Exporter broker</td>
</tr>
</tbody>
</table>

| Total Number of originals | 196 |
## Annex 2
### Example of BPA List of Data Elements

<table>
<thead>
<tr>
<th>Number from Document Spreadsheet: 1a</th>
<th>Document Name: Invoice</th>
<th>Data element number</th>
<th>Data element description</th>
<th>Additional description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>Invoice number</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>Invoice issue date</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>Date of loading</td>
<td>Optional</td>
<td>Information on the seller/exporter with the data listed below</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Information on the seller/exporter with the data listed below</td>
<td>This seller/exporter details are most often found in the document header</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>Name of the Exporter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>Address and contact info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>VAT number</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>SWIFT code and name of the seller’s bank</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>Name of the Importer</td>
<td>Same information as for importer/buyer</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>9</td>
<td>Importer Address and contact info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>Importer VAT number</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>11</td>
<td>SWIFT code and name of the bank</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>Name of the Consignee, if different from buyer</td>
<td>Same information as for importer/buyer</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>13</td>
<td>Consignee Address and contact info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>14</td>
<td>Consignee VAT number</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>15</td>
<td>Description of the goods</td>
<td>Optional</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>16</td>
<td>HS six digit number</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>17</td>
<td>Number of packages/pallets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>18</td>
<td>Currency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>19</td>
<td>Unit Value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>20</td>
<td>Total Value of invoice</td>
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<tr>
<td>21</td>
<td>21</td>
<td>Net and gross weight</td>
<td></td>
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<tr>
<td>22</td>
<td>22</td>
<td>Country of Origin (where the goods were grown, produced or manufactured). If the shipment includes goods of different origins, the origin should be given with the narrative description for each type of good in the shipment(s).</td>
<td>If the goods were grown, produced or manufactured in different countries, this should be indicated with a description of what was done where</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>23</td>
<td>Statement of preferential origin of the goods, if the value of the goods is not more than 6,000.00 EUR</td>
<td></td>
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<tr>
<td>24</td>
<td>24</td>
<td>Incoterms</td>
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<tr>
<td>25</td>
<td>25</td>
<td>Expected temperature regime</td>
<td>Optional (only for goods with need for a temperature regime, like food, medicines, etc.)</td>
<td></td>
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<tr>
<td>26</td>
<td>26</td>
<td>Payment terms</td>
<td></td>
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<tr>
<td>27</td>
<td>27</td>
<td>Stamp and signature</td>
<td></td>
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</tr>
</tbody>
</table>
Annex 3
Leather Value Chain Glossary

The below glossary has been compiled with reference to the ISO Leather – Vocabulary\(^{31}\), along with other documents and reports that have been prepared as part of the UNECE Project to advance traceability and transparency of sustainable value chains in the garment and footwear sector. Terms and definitions are listed here to ensure harmonisation and standardisation for the industry stakeholders within the project.

**Key:**
Glossary terms taken from ISO Leather – Vocabulary\(^{1}\) are shown in *italics* (this is not the full vocabulary).
Glossary terms from the UNECE / ITC / UNCEFACT / UNIDO are shown in **blue**.

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>abattoir (slaughteringhouse)</td>
<td>&lt;facility&gt; where animals are sent for slaughter at end of life</td>
</tr>
<tr>
<td>agent trader</td>
<td>&lt;party&gt; buys and sells material at different stages of production and may conduct a small operation on the material that does not chemically alter it</td>
</tr>
<tr>
<td>aniline leather</td>
<td>&lt;material&gt; leather whose natural <em>grain</em> is clearly visible either without a surface coating or with a non-pigmented surface coating. NB1: The thickness of non-pigmented surface coating is usually less than or equal to 0.01 mm</td>
</tr>
<tr>
<td>basification</td>
<td>&lt;process&gt; mild alkali treatment to ensure completion of <em>tanning</em> e.g. treating the mineral tanned stock with a view to forming a large aggregate of metallic compounds and enabling reactive groups of <em>skins</em> to complex with tanning material.</td>
</tr>
<tr>
<td>bate</td>
<td>&lt;material&gt; enzymes mixed with an inert carrier used to selectively remove unwanted constituents of <em>hides</em> and <em>skins</em>.</td>
</tr>
<tr>
<td>acid bate</td>
<td>bate that has optimum activity in the pH range of 3 to 5</td>
</tr>
<tr>
<td>alkaline bate</td>
<td>bate that has optimum activity in the pH range of 8 to 8.5</td>
</tr>
<tr>
<td>bating</td>
<td>&lt;process&gt; the process of removing unwanted interfibrillary proteins by treating the <em>hides</em> and <em>skins</em> with bates to obtain soft and pliable leather with a smooth grain surface</td>
</tr>
<tr>
<td>beam</td>
<td>&lt;equipment&gt; convex wooden slab sloping downward from about waist height over which a hide is placed for unhairing, trimming off excess flesh and ragged edges and <em>scudding</em> by hand knife</td>
</tr>
<tr>
<td>box calf</td>
<td>&lt;material&gt; full chrome tanned calf leather, black or coloured, smooth or boarded, with proteinic finishing</td>
</tr>
<tr>
<td>brand agent</td>
<td>&lt;party&gt; buys and sells finished leather on behalf of brands without any transformation of material</td>
</tr>
<tr>
<td>buffing</td>
<td>&lt;process&gt; abrasive mechanical treatment to the <em>grain</em> or flesh surface of the leather</td>
</tr>
<tr>
<td>cavallino</td>
<td>&lt;material&gt; specific Italian term for leather, usually derived from calf skins, with trimmed and short hair so that it looks glossy and silky, likened to the horse hair</td>
</tr>
<tr>
<td>chamois</td>
<td>&lt;material&gt; leather made from the <em>flesh split</em> of sheepskin or lamb skin from which the <em>grain</em> has been removed by frizzling, and tanned by processes</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>chrome-free leather</td>
<td>hide or skin converted to leather by a tanning agent free of chromium salts, where the total content of chromium in the tanned leather is less than or equal to 0.1% (mass of chromium/total dry weight of leather)</td>
</tr>
<tr>
<td>chrome-tanned leather</td>
<td>hide or skin converted to leather either by treatment solely with chromium salts or with chromium salts together with a small amount of some other tanning agent, used merely to assist the chromium tanning process, and not in sufficient amount to alter the essential chromium tanner character of the leather</td>
</tr>
<tr>
<td>CITES</td>
<td>Convention on International Trade in Endangered Species of Wild Fauna and Flora, an international agreement between governments to ensure that international trade in specimens of wild animals and plants does not threaten their survival</td>
</tr>
<tr>
<td>coated and coated split leather</td>
<td>leather and split leather where the surface coating, applied to the outer side, does not exceed one third of the total thickness of the product but is in excess of 0.15 mm</td>
</tr>
<tr>
<td>corrected grain leather</td>
<td>leather in which the grain has been partially removed by buffing or any similar mechanical treatment, and enhanced by a finishing treatment</td>
</tr>
<tr>
<td>crust</td>
<td>leather in a partially finished state, i.e. tanned, retanned, fatliquored, which has then been dried for storage or sale until the end finishing requirement is known</td>
</tr>
<tr>
<td>dyed crust leather</td>
<td>leather tanned, dyed, fatliquored and dried, before finishing</td>
</tr>
<tr>
<td>pearl crust leather</td>
<td>undyed leather that has been tanned, retanned, fatliquored and dried, before finishing</td>
</tr>
<tr>
<td>curing</td>
<td>temporary preservation of raw hides and skins</td>
</tr>
<tr>
<td>degreasing</td>
<td>removing natural fat from the hide or skin by emulsification in an aqueous media and/or using a solvent media</td>
</tr>
<tr>
<td>degree of tannage</td>
<td>amount of fixed organic matter in 100g of collagen</td>
</tr>
<tr>
<td>deliming</td>
<td>removing the alkalinity of limed pelt</td>
</tr>
<tr>
<td>double face</td>
<td>double-sided leather made from lamb or sheep skins or other animals with wool, dressed, tanned, softened and dyed for desired properties.</td>
</tr>
<tr>
<td>drum</td>
<td>cylindrical vessel with baffles inside and capable of rotation about its own axis, used for mechanical agitation in leather processing</td>
</tr>
<tr>
<td>dry drumming</td>
<td>dry tumbling for leather with or without additives in a revolving drum to soften the structure and improve the nap</td>
</tr>
<tr>
<td>dry salting</td>
<td>curing by which the hides and skins are treated with common salt and dried</td>
</tr>
<tr>
<td>dyed crust leather</td>
<td>leather tanned, dyed, fatliquored and dried, before finishing</td>
</tr>
<tr>
<td>effluent / wastewater</td>
<td>liquid waste discharged from a tannery following production processes that can be treated to remove contaminants and discharged direct to rivers or seas, or left untreated and sent to an Effluent Treatment Plant (or Wastewater Treatment Plant)</td>
</tr>
<tr>
<td>effluent / wastewater treatment plant</td>
<td>where industrial liquid waste from tanneries is sent to be cleaned of harmful chemicals before discharge into the environment or being sent back to the tanner for reuse</td>
</tr>
</tbody>
</table>
| **common effluent treatment plant (CETP)** | <facility> a treatment plant that is run by a private organisation or a group of organisations and where the effluent from many industries can be treated or just tannery effluent  
**NB1:** they also can be identified as a Central Treatment Plant (CTP) |
| **municipal effluent treatment plant (METP)** | <facility> a treatment plant that is government run and could involve a mix of industrial and domestic effluent to be cleaned before discharge back into the environment  
**NB1:** they also can be identified as a Municipal Treatment Plant (MTP) |
| **E.I. leather (East India leather)** | <material> *vegetable-tanned leather* with characteristic light beige or pale golden yellow colour manufactured by a process specific to a geographical location |
| **exotic leather** | <material> made from the *skins* of animals that are not generally reared for diary and meat production or animals that are considered rare, e.g. lizard, snake, ostrich |
| **fatliquor** | <material> natural or synthetic oil-based formulation that can be an emulsion, solution or dispersion used to lubricate leather fibres |
| **fatliquoring** | <process> application of *fatliquors* for lubricating and softening leathers |
| **finishing** | <process> chemical and/or mechanical operations carried out on crust leathers to impart the desired properties for the intended final use of the leather |
| **fleshing** | <process> removal of residual tissue, fat or remnants from *hides or skins* using mechanical or manual knives |
| **full grain leather** | <material> leather having kept its entire *grain*, with none of the surface removed by any corrective mechanical treatment |
| **glazing** | <process> operation of producing a bright, glossy or glasslike *finish* on the *grain* surface of leather |
| **grain** | <material> outer side of the leather once the hair or wool and epidermis have been removed, characterised by follicles from hair or wool, feather follicles or scales, specific to each animal species |
| **hide** | <material> raw *skin* or a mature or fully-grown animal of the larger kind, e.g. cattle and buffalo |
| **hide powder** | <material> powder from well-washed, dried, delimed *pelt* disintegrated using a *grinding mill* |
| **hide substance** | <material> amount of collagenous substance in 100g of dry leather |
| **industrial farm system** | <process> combines the characteristics of a birthing farm, rearing farm and finishing farm (*feedlot*), and is commonly used for large volume meat production |
| **birthing farm (cow/calf farm)** | <facility> where calves are born and stay with their mothers until they are weaned |
| **rearing farm (raising farm)** | <facility> where young animals are sent to continue to grow to a pre-determined age/weight |
| **finishing farm (feedlot)** | <facility> where cattle spend the last 4 months of life (approximately), prior to slaughter, to ensure optimum weight and health for meat production |
| **laminated leather** | <material> leather where a foil (polymeric film) layer, not exceeding one third of the total thickness, is applied by a transfer coating process  
**NB1:** other methods of applying a foil are plating, embossing and ironing |
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>leather</td>
<td><em>hide or skin</em> with its original fibrous structure more or less intact, tanned to be imputrescible (not liable to decomposition), where the hair or wool may or may not have been removed, whether or not the <em>hide or skin</em> has been split into layers or segmented either before or after <em>tanning</em> and where any surface coating or surface layer, however applied, is not thicker than 0.15 mm. NB1: If the tanned <em>hide or skin</em> is disintegrated mechanically and/or chemically into fibrous particles, small pieces or powders, and is then, with or without the combination of a binding agent, made into sheets or other forms, such sheets or forms are not leather. NB2: If the <em>grain</em> layer has been completely removed, the term leather is not to be used without further qualification, e.g. <em>split leather</em>, <em>suede leather</em>. NB3: The material shall be of animal origin.</td>
</tr>
<tr>
<td>liming</td>
<td><em>treatment of raw hides and skins</em> with lime liquor with a view to plumping and/or unhairing.</td>
</tr>
<tr>
<td>loose grain</td>
<td><em>grain</em> whose attachment to corium has been eroded, giving rise to pronounced wrinkles when leather is bent, grain inside.</td>
</tr>
<tr>
<td>masking agent</td>
<td><em>weak acids and their salts</em> added during <em>mineral tanning</em> to prevent precipitation of tanning salts.</td>
</tr>
<tr>
<td>metal-free leather</td>
<td><em>hide or skin</em> converted to leather, where the total content of all tanning metals (Cr, Al, Ti, Zr, Fe) in the leather is less than or equal to 0.1% (mass of all metal/total dry weight of leather).</td>
</tr>
<tr>
<td>milling</td>
<td><em>softening of the leather by rotation in a dry drum</em>.</td>
</tr>
<tr>
<td>nap</td>
<td><em>vertical and fine fibres</em> cut short enough to produce a velvety two-tone effect when a two-way stroke is applied by hand.</td>
</tr>
<tr>
<td>nappa</td>
<td><em>soft full grain leather</em> through dyed and lightly finished.</td>
</tr>
<tr>
<td>nappalan</td>
<td><em>wool-on-sheepskin</em>, finished by coating on the reverse side.</td>
</tr>
<tr>
<td>nappalan finish</td>
<td><em>finishing on the flesh side of hides and skins</em>.</td>
</tr>
<tr>
<td>neutralization</td>
<td><em>raising the pH of a mineral-tanned leather towards neutral from an acidic zone</em> by treatment with a solution of salt of a weak alkali or buffer mixture.</td>
</tr>
<tr>
<td>nubuck</td>
<td><em>leather snuffed</em> (buffed) to give a velvety effect, where the original <em>grain</em> pattern is still visible.</td>
</tr>
<tr>
<td>organic-tanned leather</td>
<td><em>hide or skin</em> converted to leather by natural or synthetic organic tanning agents, where the total content of tanning metals (Cr, Al, Ti, Zr, Fe) is less than or equal to 0.3% (mass of all metals/total dry weight of leather).</td>
</tr>
<tr>
<td>parchment</td>
<td><em>dry, translucent or opaque untanned hide or skin</em> material.</td>
</tr>
<tr>
<td>patent leather</td>
<td><em>leather</em> with generally a mirror-like effect, obtained by application of a layer of pigmented or non-pigmented varnishes, or synthetic resins, whose thickness does not exceed one third of the total thickness of the product. NB1: The term patent <em>split leather</em> also exists. NB2: Varnishes and lacquers are usually based on linseed oil, nitrocellulose, polyurethane and/or other synthetic resins.</td>
</tr>
<tr>
<td>pelt</td>
<td><em>hide or skin</em> prepared for tanning by removal of the hair of the wool, epidermis and flesh. NB1: The term pelt can also be used for the skin of an animal with fur or hair still on it.</td>
</tr>
<tr>
<td>pickled pelt</td>
<td><em>pelt</em> treated with acid and brine, to be preserved or to be prepared for tanning.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<td>-----------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>pickling</strong></td>
<td>&lt;process&gt; treating the pelts, hides or skins with acid and salt to lower the pH</td>
</tr>
<tr>
<td><strong>pigmented leather</strong></td>
<td>&lt;material&gt; leather whose natural grain or surface is completely concealed with a finish containing pigments. NB1: the term pigmented split leather also exists</td>
</tr>
<tr>
<td><strong>pull-up leather</strong></td>
<td>&lt;material&gt; leather that, by design, lightens in colour when stretched</td>
</tr>
<tr>
<td><strong>raw hide</strong></td>
<td>&lt;material&gt; hide which has only been treated to preserve it</td>
</tr>
<tr>
<td><strong>sammying (samming)</strong></td>
<td>&lt;process&gt; reducing the moisture content of pelts or leathers by squeezing between the rollers in a machine</td>
</tr>
<tr>
<td><strong>scudding</strong></td>
<td>&lt;process&gt; removing scud from unhaired hides and skins by scraping or chemical treatment</td>
</tr>
<tr>
<td><strong>semi-aniline leather</strong></td>
<td>&lt;material&gt; leather that has been coated with a finish containing a small amount of pigment, so that the natural grain is clearly visible</td>
</tr>
<tr>
<td><strong>semi-chrome leather</strong></td>
<td>&lt;material&gt; leather that has been tanned first with vegetable tanning and then retanned with chromium salts</td>
</tr>
<tr>
<td><strong>setting</strong></td>
<td>&lt;process&gt; reducing the wrinkles / growth marks and smoothing the grain by pressing between two rollers</td>
</tr>
<tr>
<td><strong>shaving</strong></td>
<td>&lt;process&gt; mechanical operation carried out to make the thickness of the leather uniform</td>
</tr>
<tr>
<td><strong>shearling</strong></td>
<td>&lt;material&gt; tanned and dressed skin of a sheep still bearing the original wool that has been cut to approximately even length</td>
</tr>
<tr>
<td><strong>shrunken grain leather</strong></td>
<td>&lt;material&gt; leather specifically tanned so as to shrink the grain layer, with a grain surface of prominent but uneven folds and valleys</td>
</tr>
<tr>
<td><strong>side</strong></td>
<td>&lt;material&gt; half of a whole hide, obtained by dividing it along the line of the backbone</td>
</tr>
<tr>
<td><strong>skin</strong></td>
<td>&lt;material&gt; outer covering of smaller types of animals, e.g. sheep and goats, or of the immature animals of the larger species, e.g. calves</td>
</tr>
<tr>
<td><strong>skiver</strong></td>
<td>&lt;material&gt; tanned outer or grain split, typically of a sheepskin or lambskin, but sometimes applied to goatskin or calfskin</td>
</tr>
<tr>
<td><strong>snuffing</strong></td>
<td>&lt;process&gt; lightly buffing the grain surface of leather, usually by a machine with an abrasive covered cylinder</td>
</tr>
<tr>
<td><strong>soaking</strong></td>
<td>&lt;process&gt; rehydration of raw hides and skins to the original moisture and washing out the curing salt, dirt, dung and adhering blood</td>
</tr>
<tr>
<td><strong>spew (spue)</strong></td>
<td>&lt;material&gt; white surface deposition emanating from the leather</td>
</tr>
<tr>
<td><strong>split leather</strong></td>
<td>&lt;material&gt; layer from a hide or skin made from a flesh split or a middle split, without any grain structure, tanned to be imputrescible. NB1: a split is a layer of hide or skin obtained by dividing it horizontally (splitting) to obtain at least two separate layers; the top layer is call grain split and the bottom layer is called flesh split; for heavy hides a middle split can also be obtained. NB2: if the name of the animal whence it originates, or the part of the animal whence it comes, is included in the description, the term “split leather” will be used as a noun, e.g. pig split leather</td>
</tr>
<tr>
<td><strong>grain split</strong></td>
<td>&lt;material&gt; upper or top layer of a hide or skin with grain surface, separated from the hide or skin by splitting horizontally in a machine</td>
</tr>
<tr>
<td><strong>flesh split</strong></td>
<td>&lt;material&gt; inner of under layer of a hide or skin with grain surface, separated from the hide or skin by splitting horizontally in a machine</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>------</td>
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</tr>
<tr>
<td>middle split</td>
<td>middle layer of a <em>hide or skin</em> with grain surface, separated from the <em>hide or skin</em> by splitting horizontally in a machine</td>
</tr>
<tr>
<td>staking</td>
<td>softening of leather through a pummelling action using a rotary or vibratory staking machine</td>
</tr>
<tr>
<td>subcontractor</td>
<td>a person or company that signs a contract to perform part of all of the obligations of another’s contract (i.e. in the leather sector a subcontractor provides a transformation process on behalf of a <em>tannery</em> without owning the material).</td>
</tr>
<tr>
<td>substance</td>
<td>thickness of leather</td>
</tr>
<tr>
<td><em>suede (velour)</em></td>
<td>leather or <em>split leather</em> whose wearing surface has been mechanically finished to produce a velvet-like nap</td>
</tr>
<tr>
<td>T/NT ratio</td>
<td>ratio of tannins to non-tannins in a vegetable <em>tanning</em> material</td>
</tr>
<tr>
<td>tannery</td>
<td>a place where the process of leather manufacture occurs NB1: tanneries may perform the whole transformation process from <em>raw hide</em> to <em>finished leather</em> or may perform a part process</td>
</tr>
<tr>
<td>tanning</td>
<td>treatment of <em>hide or skin</em> with extracts of natural products (e.g. bark, leaves, seeds) or chemical agents (e.g. chromium, aluminium, organic compounds) to stabilize against heat, enzymatic attack and thermo-mechanical stress</td>
</tr>
<tr>
<td>traceability</td>
<td>“the ability to trace the history, application or location of an object&quot; in a supply chain (ISO, 2015). In this context, it is defined as the ability to &quot;identify and trace the history, application, location and distribution of products, parts and materials, to ensure the reliability of sustainability claims, in the areas of human rights, labour (including health and safety), the environment and anti-corruption&quot; (UN Global Compact 2014); and &quot;the process by which enterprises track materials and products and the conditions in which they were produced through the supply chain&quot; OECD, 2018</td>
</tr>
<tr>
<td>vegetable-tanned leather</td>
<td><em>hide or skin</em> converted to leather by vegetable tanning agents, where the total content of tanning metals (Cr, Al, Ti, Zr, Fe) is less than or equal to 0.3% (mass of all metals/total dry weight of leather)</td>
</tr>
<tr>
<td>wet-blue</td>
<td><em>leather</em> in a wet condition after chrome tanning NB1: Wet-blue is an intermediate stage of manufacturing</td>
</tr>
<tr>
<td>wet salting</td>
<td><em>curing of hides and skins</em> by treating with salt and then draining so that the product remains wet</td>
</tr>
<tr>
<td>wet-white</td>
<td><em>leather</em> in a wet condition after tanning with substances, e.g. zirconium salts, aluminium salts, modified aldehydes, glutaraldehydes and syntans, that confer a whitish colour NB1: Wet-white is an intermediate stage of manufacturing</td>
</tr>
</tbody>
</table>