BIOTEXFUTURE

CIRCWOOL: RECYCLING TECHNOLOGY FOR WOOL WASTE AS REINTEGRATION INTO A TEXTILE CYCLE

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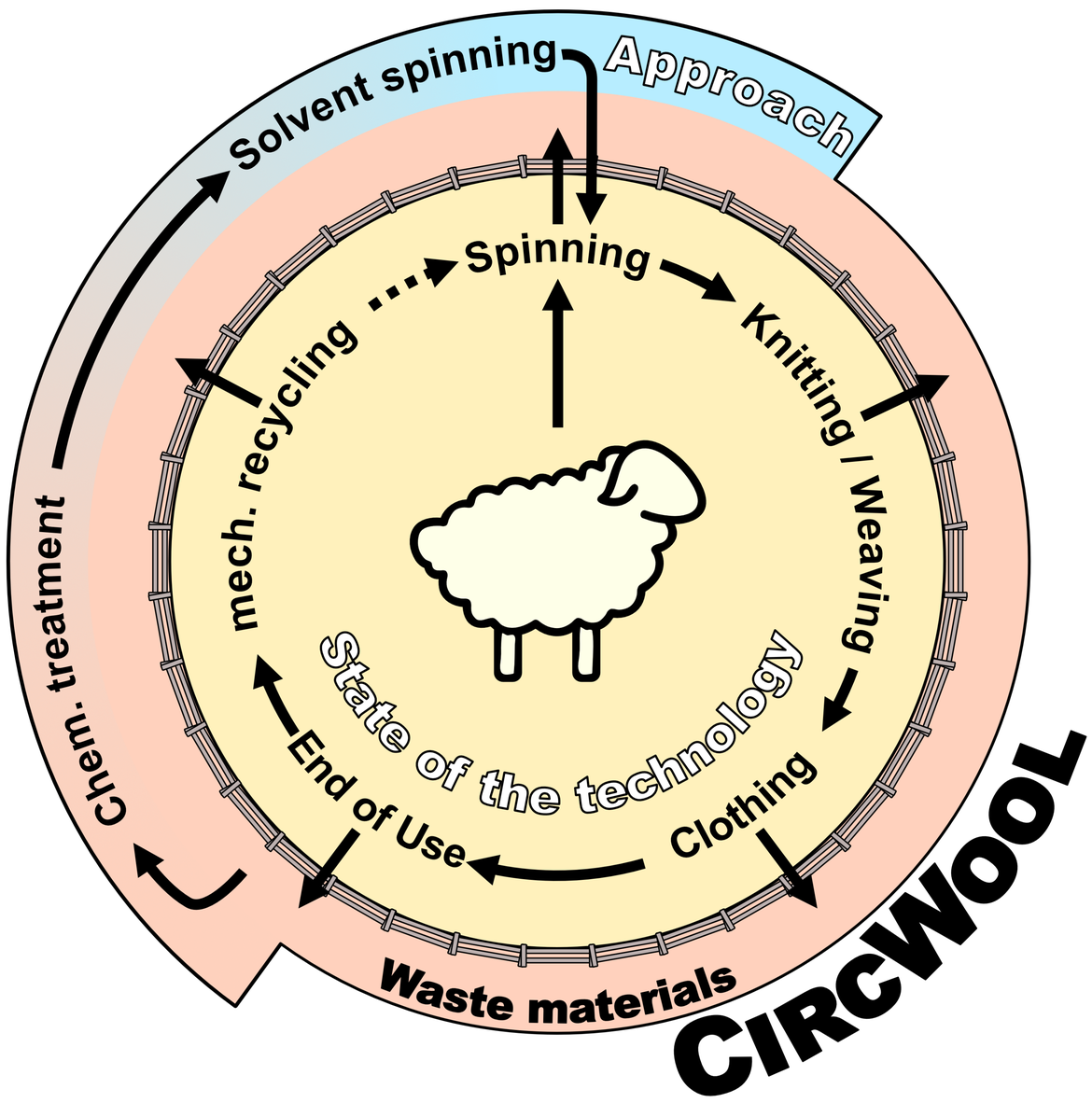
WORKING PLAN:

1. **Sorting analysis of the waste volume** → recyclability is assessed on the basis of defined factors and a sorting catalogue
2. **Material flow analysis along the value chain** → to determine the potential of solvent-based recycling of wool and to investigate upstream sorting for subsequent utilization
3. **Development of a solvent-based unravelling process for wool** → the resulting solutions are characterised for viscosity, chemical structure (spectroscopy), thermal properties and spinnability
4. **Wet spin process development** → production of a protein fibre without petroleum-based additives

GOAL:

- Process is to be developed that makes it possible to **chemically dissolve wool residues** and process them in order to **reintegrate the recycled material** into the textile cycle as a synthetic protein fibre,
- The focus is on **developing a new fibre** that either consists of pure keratin or contains keratin in combination with biopolymers or recycled polymers such as cellulose, glucans, chitosan or recycled acrylic,
- Overall aim is to **demonstrate the economic potential** of solvent-based wool waste recycling and the **feasibility of a pure wool-protein fibre** to promote the regional wool industry in the context of the circular economy.
  - The fibre properties and process control will be **validated** against a standard polyester filament yarn (167 dtex, 68 filaments, 30-60 % elongation at break, 30-35 cN/tex).



PROJECT DURATION:

01.04.2024 – 31.03.2025

PROJECT PARTNERS:

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