State of Play: What research says about the environmental impact of resale and repair?

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Climate impact from fashion and apparel

- In the 21st century, carbon emissions from the fashion industry has increased by 30% [1]
- Textile purchases in the EU in 2022 generated about **355 kg of CO2 emissions per person** [2,3]
  - Equivalent of travelling 1 800 km by car: From Stockholm to Basel, Switzerland
- Textiles are the sixth largest household consumption category in terms of pressures on the climate in Europe [3]
  - About 70% of emissions are released outside Europe

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How do we address this?

- New business models are needed! [4]
  - The volumes of consumption need to be reduced
- Reselling offers reductions of around 10-40% climate impact [5,6,7]
  - Even more reductions for freshwater eutrophication (≈ 50%), and water scarcity footprint (≈40%) [5]
  - Depends on system boundaries, allocation of impacts between life cycles, carbon intensity of energy background systems (geographical locations)
- The environmental gains of reuse models depends to what the reuse purchase replaces the purchasing of a new garment
  - This is called displacement/replacement rate
  - Ranges in literature suggests 30-80% displacement rates [1]
  - Research also suggests that consumers who purchase more new clothing also tend to buy more used clothing [8]

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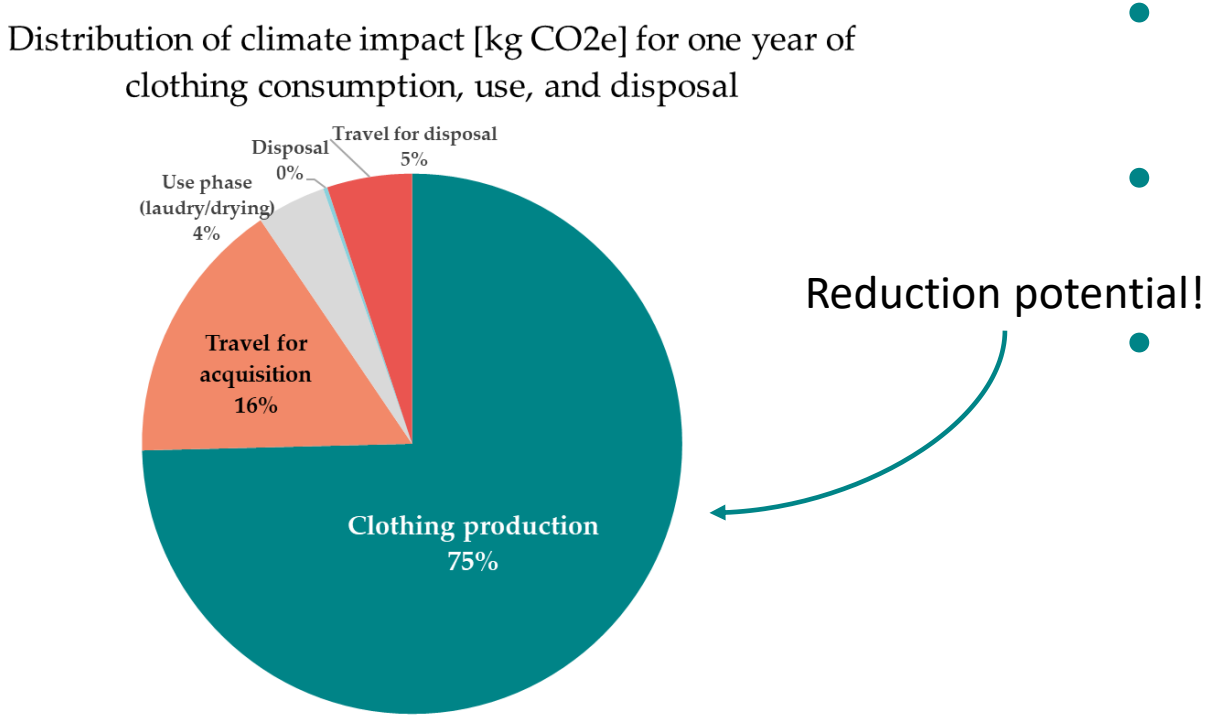
How much can increased reselling influence the climate impact?



Reduction potential!

- Ongoing research project funded by European Union
- Data collected via questioners to households in Europe
- The production of clothing is the main contributor to climate impact
  - Almost 70% of clothes purchased are new
  - 20% are second-hand reselling
    - Rest are swapped, gift, or hand me down
  - Only 40% of second hand purchased fully displaced a new purchase
- Travelling for both acquisition and disposal are also hotspots

Preliminary results from the CARE - Circular consumption activities to transform households toward material efficiency- funded by the European Union under Grant Agreement No. 101135141

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Comparing the impacts of linear and circular business models for shoes

- Part of a project financed by The Swedish Retail and Wholesale Council in collaboration with Wargön Innovation, Chalmers, Nordeconsult/SSEI, Scorett, Nilson group, ANWR, and Shepherd of Sweden
- Life cycle assessment of a circular business model
  - Circular shoes are collected, refurbished, and sold for 50% of a new shoe
  - Basis of comparison is on profit made
- A low profit per sold second hand shoe increases the transactions needed to match the linear business model
  - 5 pairs of circular shoes sold per 1 pair of linear shoe sold to reach same profit!
- The circular business model performed worse!
- The policies from the New Bottom Line report were implemented in the model and tested
  - When combined, improvements were made, but more efforts are needed, such as:
    - Increased price of second-hand shoes
    - Decreasing customer travels by car
    - Improved quality in collection of used shoes

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Improving environmental performance via resale and repair – final comments

- Displacement rate needs to increase
  - Research indicates that growth of secondary markets complement primary sales instead of displacing it [2]
- Policies can improve climate impacts of circular business models but will not solve everything
- Consumer transportations for collection of circular clothing and purchasing is a key hotspot
- Price of second-hand clothing should increase

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Acknowledgement

This research is funded by the European Union under Grant Agreement No. 101135141 and The Swedish Retail and Wholesale Council.

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