



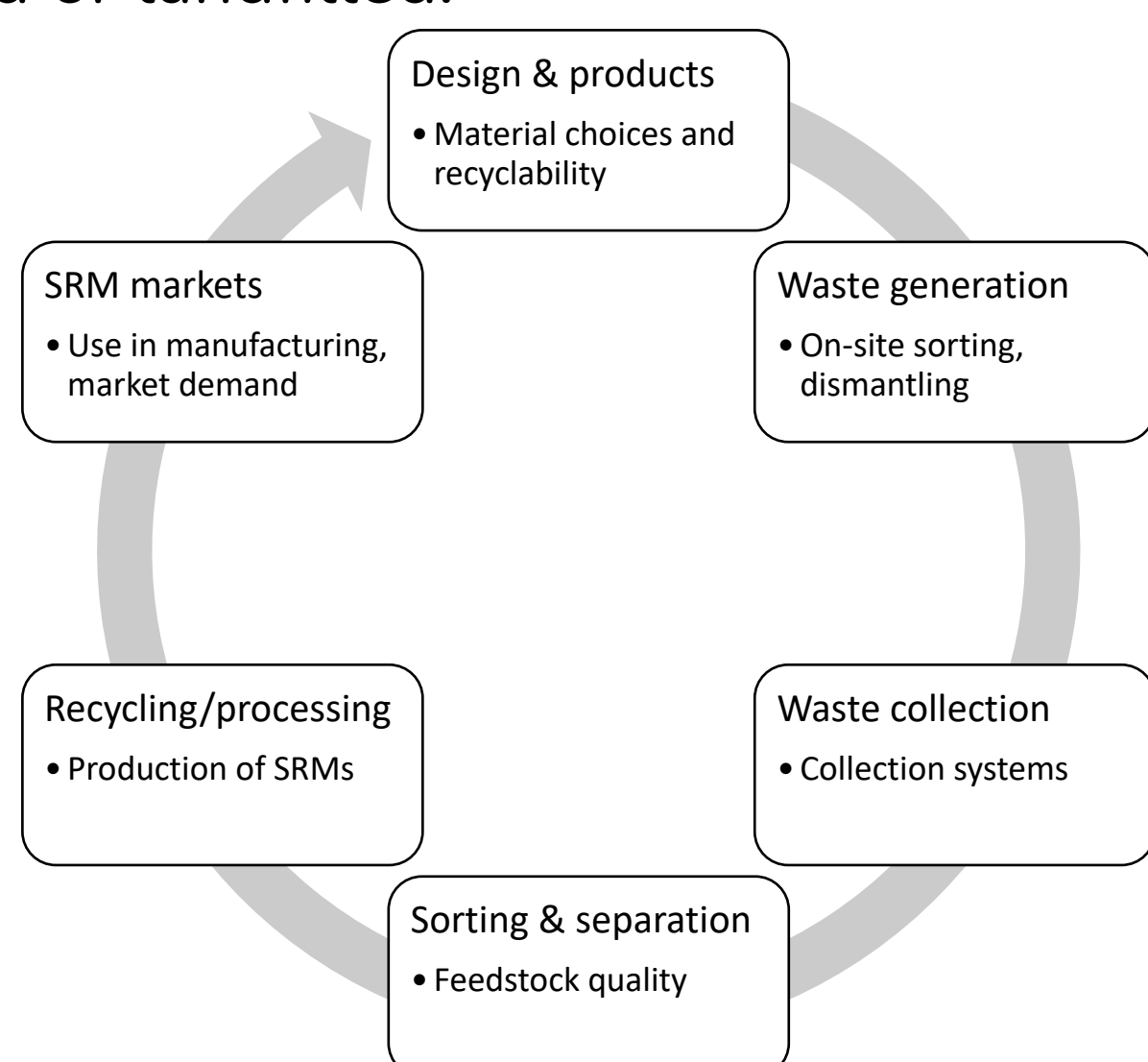
## THE PAPER IN BRIEF

The paper aims to gain an understanding of the characteristics and requirements of the logistics pertaining to the reverse supply chain of circular sustainable floor coverings, as a crucial part of enabling circulation of the material, and to identify the regulations that affect the reverse logistics.

The methodology includes a literature search and discussions with floor coverings sector stakeholders. The results show that there are special characteristics to consider pertaining to the logistics of the floor-coverings reverse supply chain, when increased circularity is aimed at, such as unpredictable supply, and several regulations affect logistics activities. The paper contributes to a better understanding of the logistics of reverse supply chains in the floor coverings sector.

## FLOOR COVERINGS REVERSE SUPPLY CHAIN

Currently, floor coverings are collected mainly as mixed waste from construction and demolition sites and incinerated or landfilled.



### CIRCULAR SUPPLY CHAIN MODEL

*The waste generation and collection phase of the value chain determines the fate of the waste and the recyclability of the waste and further the quality of the waste as a secondary raw material (SRM) and the continuity of supply*

Ideally, the circularity of floor coverings would start right from the design phase, where floor coverings are planned to last for as long as possible, are easily removable, and their recyclability has already been ensured. Waste is generated mostly at the renovation or demolition stage. The quality of SRM originating from construction and demolition activities will be determined by the way these activities are performed. In collection, mixing of different materials or material qualities should be avoided on the construction or demolition site itself. A lack of cost-effective collection, sorting, and reprocessing methods has been identified as a key barrier to the circularity of textile flooring coverings.

# POSTER SESSION

Rosa Palmgren, Elina Pohjalainen, Margareta Wahlström, Ville Hinkka, Ismo Ruohomäki

## Identifying reverse logistics and related regulations in the circular supply chain of sustainable floor coverings

### CHALLENGE

The construction and demolition industry has significant potential for recycling and reuse due to its high volume of waste streams. One challenge, besides collecting the materials, is the location of related activities like sorting and pretreatment to avoid unnecessary transportation of not recyclable materials. Today, no widespread systems for collecting floor covering waste generated from e.g., demolished buildings or transport vehicles, or renewal activities. Some companies have developed their own systems, but a lack of logistics systems for collecting floor coverings and pretreating them locally has been identified as a major barrier to achieving circularity.

### RESULTS

- Major changes are needed to the current reverse supply chain if it is to become circular
- Regulations affect circular floor coverings' logistics.
- The unpredictable supply of construction and demolition waste from various sources, posing challenges to e.g. to the collection and pretreatment.
- In collection, contamination should be minimized for high quality of the collected material. Separate collection is the most efficient way to ensure the quality.
- Streams from consumer sources are more scattered than those from commercial buildings.
- Separate collection of all floor coverings together would require major material sorting before treatment.
- Building centralized recycling facility to perform local pretreatment like separation and shredding would reduce the need for transportation capacity, carrying only material that will actually be recycled.
- Planning of the material and installation of the floor coverings will set the direction of reverse supply chain activities and usability of the material after its initial use.
- A need for new actors or role changes of current actors in the reverse supply chain to allow circulation of the materials.

### ACKNOWLEDGEMENTS



The authors wish to acknowledge the 'CISUFLO' (Circular Sustainable Floor coverings) project, which has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement ID 101003893. The content reflects solely the authors' views, and the EU is not responsible for any use of the information it contains.

HOSTED AND ORGANISED BY:



CO-ORGANISED BY:



IN COOPERATION WITH:



TOGETHER WITH:

