Ideal Circularity with Intelligent Materials Pooling?

A Feasibility Study

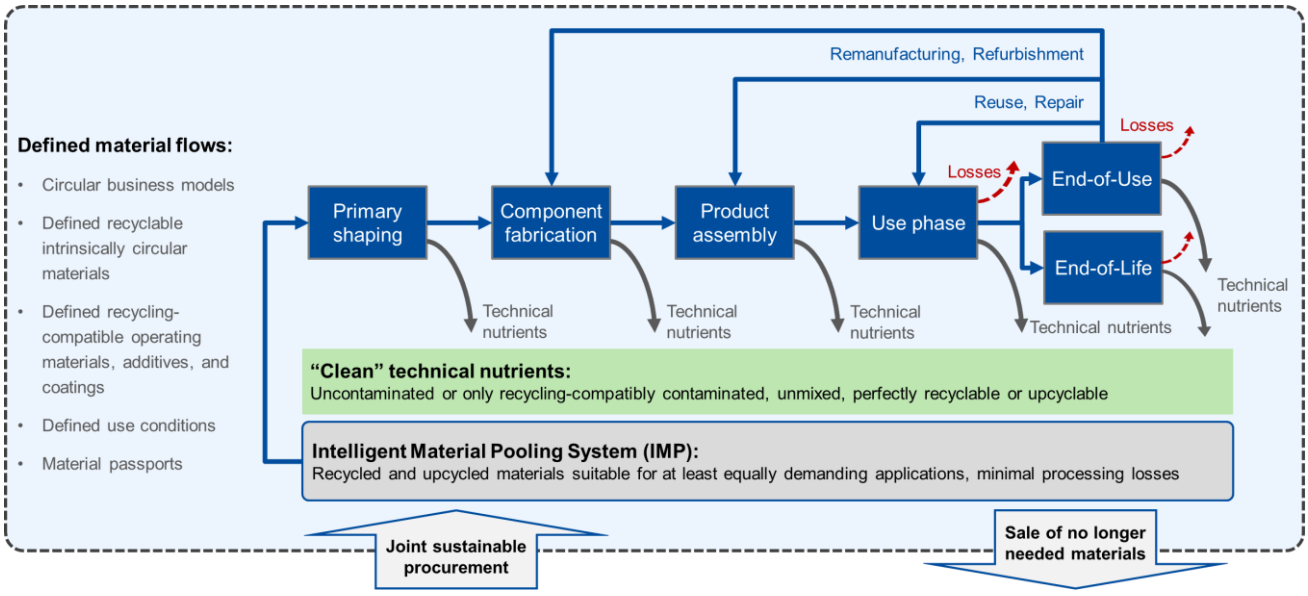
Vacant master thesis

Recommended for: M.Sc. SSE, M.Sc. Sustainable Materials

Todays “recycling systems” lead to downcycling, meaning that the recycled materials produced are of lower quality compared to virgin materials. At the same time sourcing recycled materials on the market is more costly and difficult than sourcing virgin materials while the costs of recycling are typically way lower than primary material production.

One concept that can potentially help overcoming these phenomena in a circular economy is “Intelligent Materials Pooling” (IMP). Companies and stakeholders across industries join forces to commonly define fade out lists (materials they want to substitute) as well as positive lists (materials they want to use). They then join forces for joint sustainable sourcing, R&D on substitution options, as well as creating circular resource management systems (figure below). This way superiorly economic and ecological real recycling systems could be created.

Up to now, this is just a vision. This thesis will translate this vision into a concrete concept by answering the question of what is required to reach the IMP vision. The feasibility of this novel concept should then be evaluated by modelling (no programming skills required) such a system in terms of technology, economics, circularity and ecological impact. Based on this the concept should be critically discussed while highlighting its potential and limitations.



Starts: As soon as possible

Timeframe: According to examination regulations

More topics on request!

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