

ReCircE – Digital Lifecycle Record for the Circular Economy



Transparent design of material cycles and optimization of waste sorting with the help of artificial intelligence

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Background

- The European Green Deal aims to decouple economic growth from natural resource use [1]. The supply of high-quality secondary raw materials is essential for a successful implementation of a functioning circular economy and the European Green Deal [1]
- However, the lack of information sharing among the stakeholders hinders these efforts.
- The German Federal Ministry for the Environment, Nature Conservation and nuclear Safety (BMU) developed the concept of the **"Digital Product Passport (BMU)"** [2]:
 - should contain a set of data summarising a product's components and proper disposal, considering all its lifecycle phases,
 - is used for various purposes in all life cycle phases (design, manufacture, use, disposal),
 - has a standardised data, and
 - is a basis for reliable consumer information and sustainable consumer choices

The Project

The ReCircE Project aims to **improve the resource efficiency** of material cycles by **integrating an artificial intelligence supported digital description of products** (including information on their entire lifecycle) in a **Lifecycle Passport**.

- Implement a Lifecycle Passport.
- Develop a user-friendly resource efficiency tool.
- Optimize the sorting of waste through artificial intelligence and lifecycle data.
- Collection and processing of LCA-friendly data.
- Use of information to design transparent material lifecycles and optimize waste sorting processes with the help of artificial intelligence.

The Lifecycle Passport

The Lifecycle Passport

- is an **extension** of the Digital Product Passport of the BMU.
- is a **dynamic and digital center** for the exchange of information among all stakeholders of the circular economy,
- and contains a tool **to support decision-makers** regarding the efficient use of natural resources.

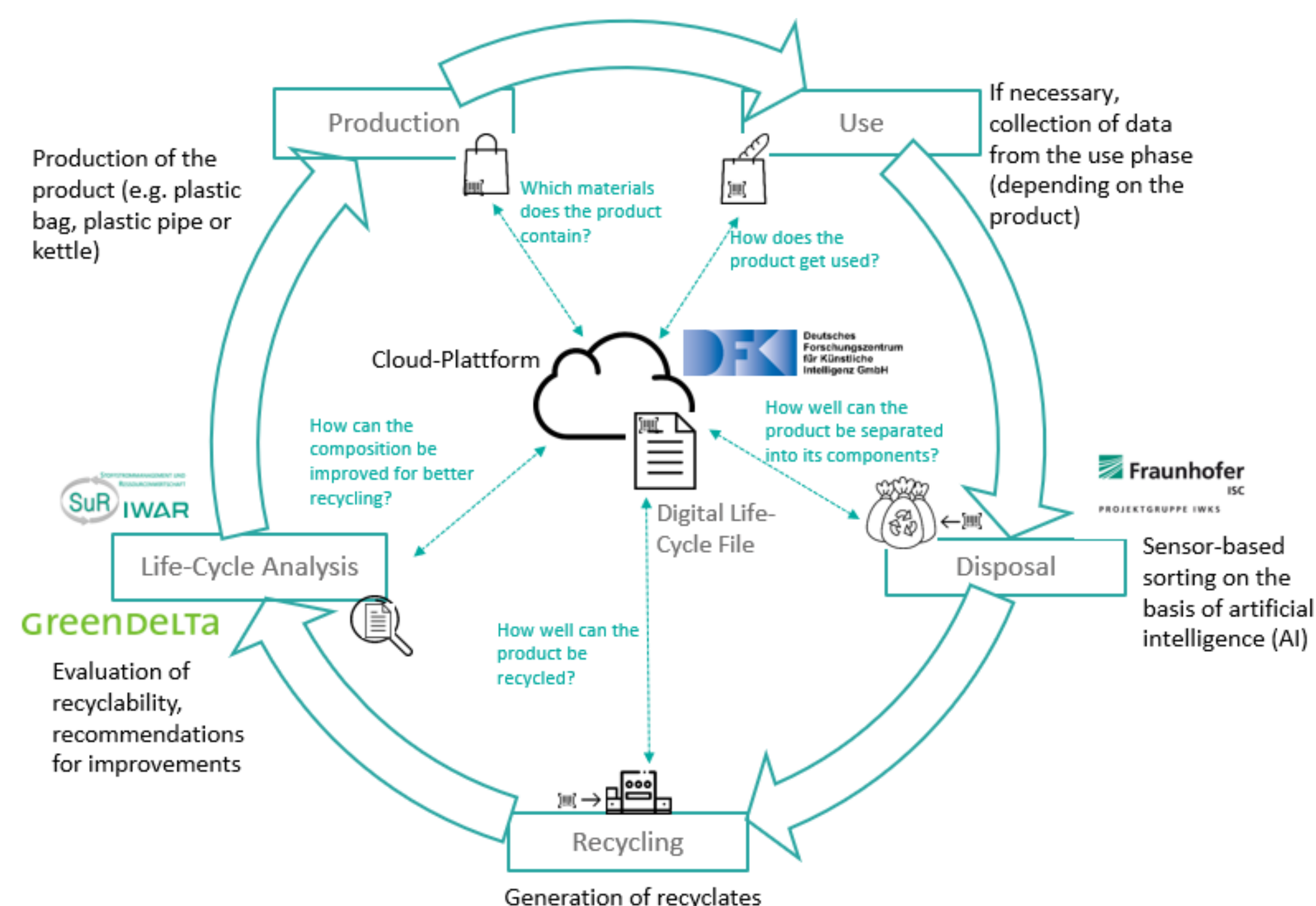


Fig. 1: Stakeholders connection through the Lifecycle Passport.

We would like to establish a **"Lifecycle Passport" working group** in the final phase of the project to

- regularly discuss the newest developments after the project has come to an end,
- test the project results with a broader user base, and
- contribute to standardization efforts

Project Consortium



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