

# Redesigning Caravans for a Circular Economy



## PROJECT

At this moment, sustainability is not taken into account when designing caravans. There is no insight into the needs and challenges. Adria would like to create a circular caravan, being the first in the industry. Creating a circular caravan is dependent on various steps on multiple levels. Companywide changes are just as important as the changes on part level. This project analysed one caravan and the context surrounding it, which resulted in a framework towards circularity. To demonstrate the framework, an example component is redesigned.

## STEPS TOWARDS CIRCULARITY

### 1 COMPANY LEVEL

Using a **Product Data Management** system company wide will allow for better access and knowledge sharing. This will prepare the company for all kinds of sustainability analyses.

### 2 CARAVAN LEVEL

**Analysing caravans with a LCA.** This will identify focuspoints, knowledge gaps and makes redesigns measurable.

### 3 PART LEVEL

**Reviewing critical components** and assess what actions need to follow such as standardization or new business opportunities.

### 4 NEW BUSINESS LEVEL

**Enabling supporting systems** for repairmen, recycling options and upgrades for owners.

### 1 CARAVAN LEVEL

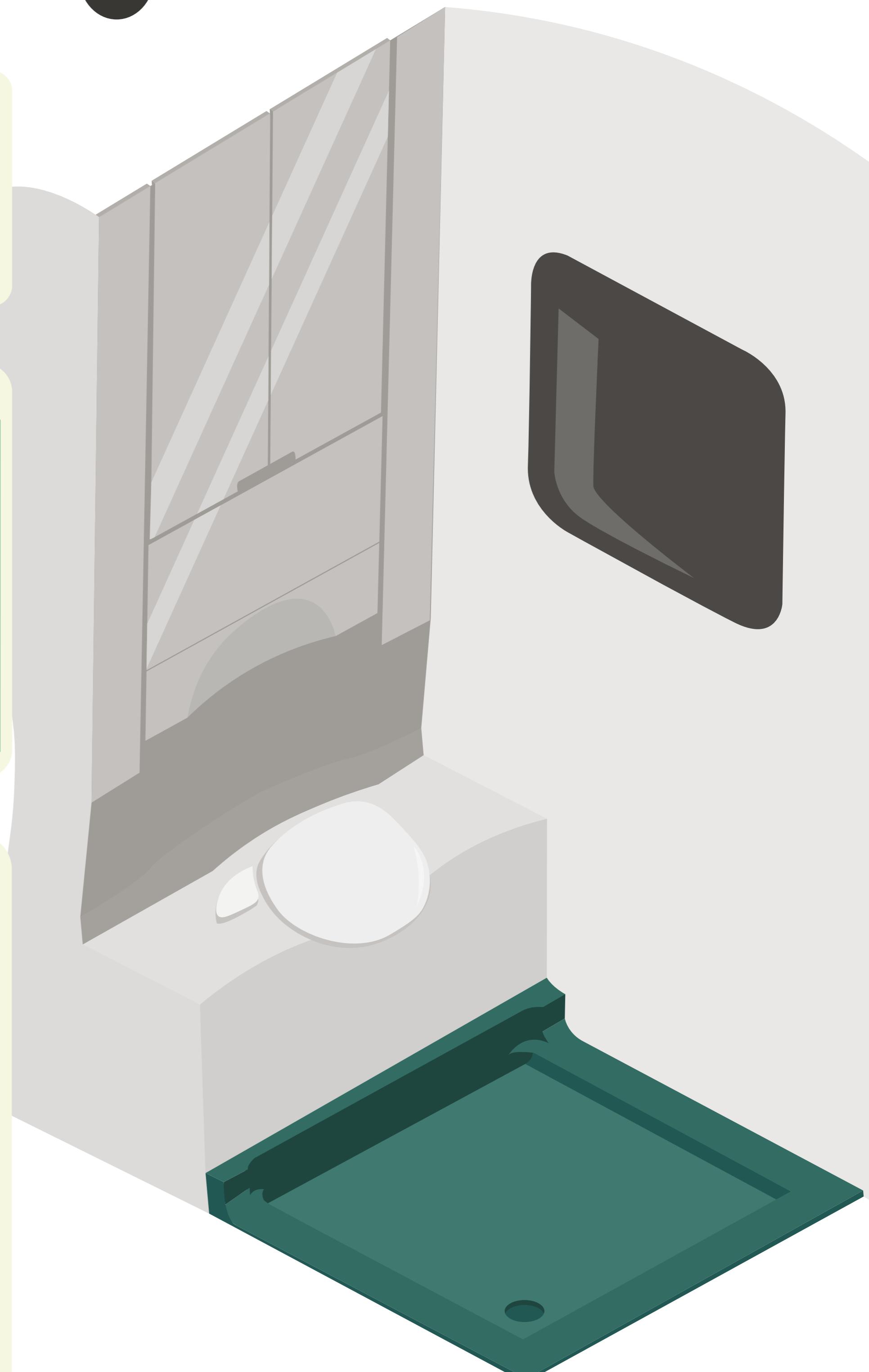
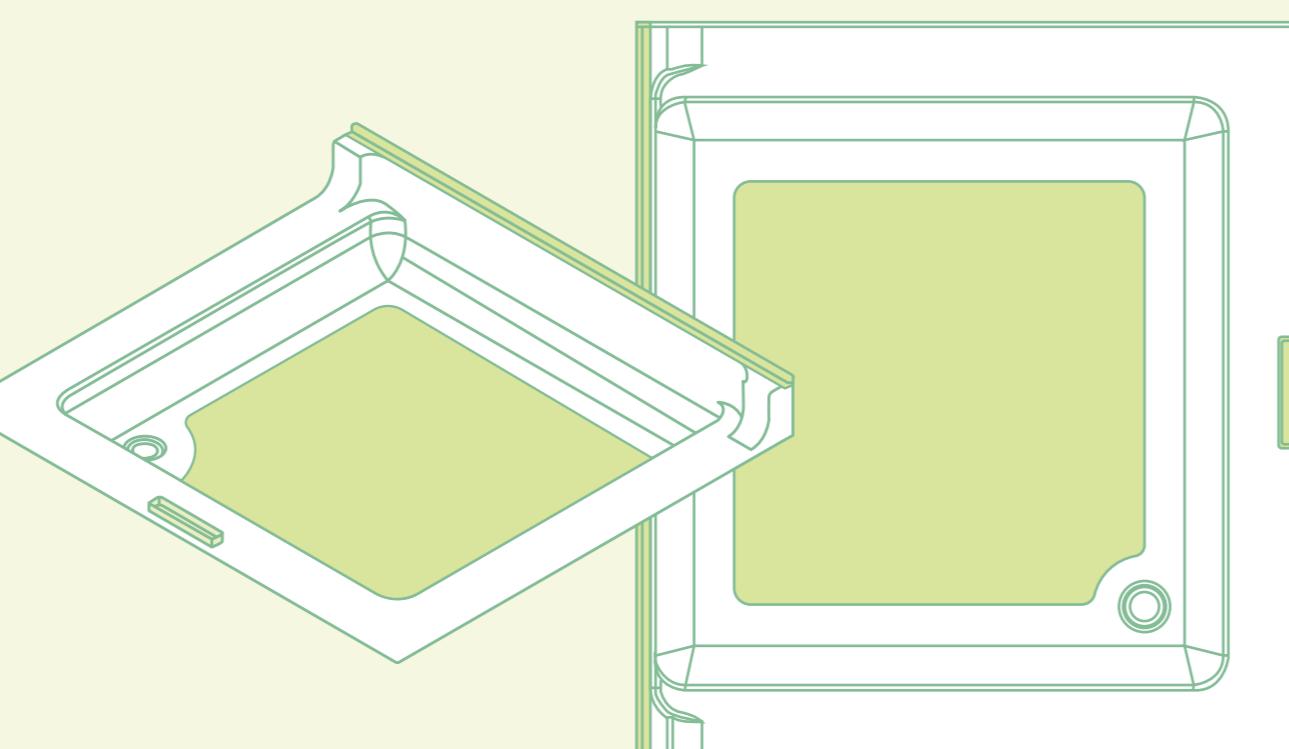
#### IDENTIFY CRITICAL PARTS

A fast-track LCA showed that the most valuable materials are in the structural body. Caravans are discarded due to inside components that are hard to repair. These repairs are difficult due to lack of instructions, unavailability of parts after many years and no standardization in the industry. A good example of a hard to repair a critical component is the bathroom floor. It is a critical part because it protects the frame from moisture, the bathroom is not functional without the floor and it is very difficult to disassemble and reassemble the floor.

### 2 PART LEVEL

#### DOES IT FIT WITHIN THE CIRCULAR ECONOMY?

Bathroom floors crack because the plasticizers leave the material, making the plastic floor brittle. Current repair methods, such as filling the floor with the resin polyurethane, make the floor non-recyclable. It would be better to replace the floors to make sure they stay in the circular economy. This is currently hard to do due to the order of assembly, having to take out a lot of furniture before reaching the floor.



### 3 ALL LEVELS

#### SOLUTION

Improving the floor goes beyond adjusting the design features. To solve the problem in the long run, there needs to be a standardization movement. Creating back-ward compatible components and limiting the number of unique parts in the company.

