

# start CIRCLES

SUSTAINABLE BUSINESS MODEL CANVAS WORKSHOP-  
Harrer

## Business idea:

In prefabricated house construction, it is currently still very difficult and costly to separate and reuse individual material components after demolition. A recycling-friendly design could greatly facilitate subsequent disassembly, separation and reuse. Although technically feasible, higher manufacturing costs are a major barrier to implementing such a design at scale.

Based on the differences in life cycle cost analysis (WP 3), the aim of the business model consultancy is to discuss opportunities and problems for dismantlability in prefabricated house construction.

The idea is to create a recycling scenario for a prefabricated wooden house, specifically for the associated exterior walls.

For this business idea a business model canvas was created, which is presented on the next but one page.

- **1) Customer segments:**

Residential customers and developers were identified as customer segments, with a distinction between "building material affinity" and "cost affinity" explained in more detail (which may relate more to residential customers, but also to developers). People with an affinity for building materials tend to spend more money on them, build more sustainably and conserve resources. However, this is the smaller part of the customers. Cost-savvy customers are those who look for a lower price and make up the larger customer base. Dismantlability is currently much more expensive and therefore there is little or no demand from customers.

- **2) Value proposition:**

The value proposition was defined as sustainable and demountable (modular construction, e.g. Tinyhouse) wooden houses for conscious customers. Benefits that these bring are a positive image, shorter construction time and possible relocation.

- **3) Social/Ecological Benefits:**

Ecological as well as social benefits are CO2 sequestration in the growth phase, reduction of summer overheating, use of domestic resources and recycling of waste wood was identified as social/ecological benefits

- **4) Canals:**

No necessary changes were identified regarding channels, the only question that came up was how many interfaces are needed.

- **5) Customer Relationships:**

Regarding customer relations, a possible improvement was emphasized and that it is more of a coordination between specialists. Here was refer to the "Building Information Model" (BIM), which involves and documents all agents involved in the construction of the house. A big problem in the disassembly is the responsibility, which could be broken down transparently by a BIM. Furthermore, almost no service is included in the house construction, because the delivered quality usually does not need service the coming years.

- **6) Income streams:**

Traditional options of lease, ownership or rent were identified as possible income streams. The question is open as to whether it is also becoming more relevant for demount ability in the future.

- **7) Key Activities:**

Integrative planning was highlighted as a key activity, which in turn relates to BIM. The goal of this BIM must be to map a planning database that is accessible to all, i.e., 1 complete work, in which all activities, dependencies, and responsibilities are mapped transparently, regardless of the topic of deconstruction.

- **8) Key Resources:**

Key resources are the natural resource wood, as well as its availability in the market, developers and also the construction time, which is significantly lower for demountable tiny houses than for traditional single family houses.

- **9) Key partners:**

Regarding key partners, the importance of networking the different actors in the supply chain and defining responsibilities was specifically mentioned. Again, reference was made to the BIM that this also provides documentation for posterity (generational issue).

- **10) Cost structure:**

The following costs were identified: Cost of deconstruction and separating materials, transportation costs, and operating costs. It was also noted that it is currently commercially difficult if not feasible. This could be addressed by better resource policies and appropriate funding.

- **11) Social Impact/Environmental Impact:**

The gap between labor and material costs is widening. The stock as well as the procurement of wood must be sustainable. At the moment, the whole issue is not as relevant in Austria as with other resources (plaster, styrofoam, etc.). The acceptance for recycled materials is quite low in society.

**Conclusion and next steps:**

- At the moment, dismantling is not commercially justifiable
- Determine at what point disassembly makes sense.
- For modular construction and tinyhousing, it potentially makes more sense
- For timber construction, it currently makes more sense to better adapt and expand the BIM, as well as to create a raw material balance for each building in order to have an overview of all relevant resources and thus also to come closer to dismantling..

