

“PERMA” picks up on the growing social awareness for more sustainability and aims to establish a resource-efficient circular economy in furniture and object construction. New types of product life cycles and manufacturer-independent compatibility guidelines enable sustainable and flexible reuse and further use of products in a value-preserving form. The development of innovative business models creates a platform for re-use, up-, down- and recycling.



PERMA

Platform for efficient resource utilisation in the furniture and furnishings industry



Resource-efficient Circular Economy – Innovative Product Cycles (ReziProK)

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Recyclable design

Decreasing raw material volumes are leading to a current change in environmental awareness. On the other hand, the demand for materials in the furniture industry is increasing due to increasing flexibility requirements resulting from rapidly changing forms of office organization such as co-working and open space. In other industries, such as exhibition, trade fair and scenery construction, the useful life of the equipment used is significantly shorter than its actual service life as well. By intervening early in the design and planning processes, products are created whose basic concept serves an increased usage and service life in cycle-oriented business models.

In order to optimise raw material efficiency in terms of holistic reuse and recycling, the “PERMA” project consortium is developing an open product and raw material platform. Based on the three-pillar model for sustainability – economic, ecological and social – innovative business models are being developed. The use of environmentally friendly materials and modularity integrated into the product design as well as cross-manufacturer compatibility open up new types of product life cycles. Parameterized modularity in addition to secondary use of the products and their sub-components, recyclable reuse options through up- and downcycling are first being investigated. Only then a return of raw materials via recycling is considered.

The basis for this is a technically implemented, holistic representation of occurring product structures and life cycles. Within the utilization concept, manufacturing characteristics and criteria are collected, with which reuse parameters are defined. New as well as used furniture and material components of various actors in the furniture and equipment industry can thus be made available for further use via the platform with corresponding parameterisation of their product and quality characteristics.

Parameterized modularity

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Open IT platform

Initially, the two manufacturing companies SYSTEM 180 GmbH and kubix GmbH will work together to develop innovative business models. Derived from this, product structures and application requirements will be discussed, which will serve as a basis for the creation of the platform. Furthermore, an evaluation matrix of recyclable product and quality features will be established with the participating scientific institutions, the Eberswalde University of Applied Sciences and the Technical University of Berlin. Finally, corresponding results will decisively determine the structure of the platform, the prototypical installation of which will be carried out by the IT company StoneOne GmbH.

With an appropriate process framework and a methodological toolbox as well as design rules, participating companies will be supported in the resource-efficient design of products throughout the entire product development process. By centralising processes and activities within the platform, the positive resource effects are increased in the form of extended service life and intelligent, cross-sector business models for reuse and further use throughout the entire cycle.

By opening up the platform to various stakeholders – from raw material suppliers to users – a large community can be reached and resource efficiency along the entire furniture and component cycle can be optimally designed. Cross-manufacturer combination options for modular components contribute significantly to increasing flexibility and the overall value proposition for customers.

First results

The two manufacturing companies have developed an innovative, sustainable and economically viable business model that forms the basis for exemplary process and function representations of actors on the platform by the universities. Based on these process representations, an agile draft of the specifications for the IT-technical representation of the platform was written.

The actors were assigned roles that define access rights, scope and functionality on the platform. The core function of the platform is a circular solution search of furniture and building groups, which is organised as an economic B2B internal market with corresponding sets of rules.

The platform is to be operated via an independent, non-profit-oriented business model. This business model includes the technical and content-related operation of the platform, as well as the integration of additional players who are not functional participants in the internal market.

In addition, further central and relevant functionalities of the platform are controlled: a knowledge library on the circular economy, certification and evaluation control as well as actor and community management.



PERMA network meeting / October 2019

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“ReziProK” is part of the research concept “Resource-efficient Circular Economy” of the Federal Ministry of Education and Research (BMBF) as part of the FONA Field of action 6: “The circular economy – efficient use of raw materials, avoiding waste” and supports projects that develop business models, design concepts or digital technologies for closed product cycles.

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Resource-efficient Circular Economy – Innovative Product Cycles (ReziProK)

As part of the FONA Field of action 6:

The circular economy – efficient use of raw materials, avoiding waste.

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PERMA – Platform for efficient resource utilisation in the furniture and furnishings industry

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CONTACT

Andreas Stadler
System 180 GmbH
Ernst-Augustin-Str. 3–5
12489 Berlin
Phone: +49 30788 58-41
E-mail: perma@system180.com

PROJECT PARTNERS

StoneOne AG
kubix GmbH
TU Berlin
HNE Eberswalde