ReziProK
Resource-efficient Circular Economy – Innovative Product Cycles

EffizientNutzen
Data-based business models for cascade use and extended product use of electronic products

The increasing production of new electronic devices, combined with the lack of repairs, refurbishing and re-manufacturing processes, leads to considerable negative environmental impacts and loss of resources. The project "EffizientNutzen" takes up this challenge and develops, based on real case studies, innovative, data-based business models for the extended product use and cascade use of electronic products.

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

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The global challenge

The production of new electronic products in so-called low-wage regions is currently often cheaper than repair, refurbishing and remanufacturing processes in high-wage countries such as Germany. In addition, ever shorter innovation cycles are generating new customer needs. Despite the desire of many people for used equipment or repair solutions, repair or refurbishing is not usually considered, even for high-quality electronic products. As a result, old products are replaced by new ones after a limited period of use and, at best, recycled as material or energetically recovered. The extent of this global problem reached a new peak in 2016 with 44.7 million tons of electronic scrap.

Data-based business models

Against this background, the project "EffizientNutzen" will develop innovative data-based business models for cascade use and extended product use of electronic products. This is done by means of two central lines of ac-

tion. The first case study focuses on the development of a viable business model for the manufacturer-neutral repair of high-quality electronic products as a service in the field of multimedia products, e.g. loudspeakers, radios, televisions, electronic toys; the second focuses on the development of business models for the take-back and, if necessary, refurbishment of electronic products for re-marketing in the context of product service systems, using the example of high-end laptops.

The repair and reconditioning processes carried out in the project, as well as the data and knowledge gained in the process, are incorporated into the development of an information portal and support the derivation of new types of business models for the circular economy. The portal realizes the offer of repaired or refurbished electronic products as a product service system as well as the marketing of the gained data and knowledge. The information portal enables an efficient exchange of information and serves as a link between the real case studies as well as between experts and external stakeholders.

First results

In the development of business models for repair and circular remarketing solutions, the focus is on a systematic inclusion of ecological and economic aspects, including the identified barriers and challenges in the two market sectors.

- The market for reused equipment was widely researched using the example of notebooks and the flow of goods (sourcing, sale) was documented.

- Attitudes towards the purchase of used IT equipment and the commissioning of repairs were surveyed.

- The market structures of spare parts supply were analysed for the cascading use of electrical and electronic equipment.

Finally, customer requirements were identified, which will be considered in the further development of business models. In the practical study on repair, for example, the reduction of repair costs and prices is being investigated by optimising and redesigning processes.

Value-added and revenue models

In the design of business models, digitalisation strategies, systems for simultaneous production and retro-production as well as networks and spare parts strategies are also included and supplemented by revenue models.

Economic and ecological impact analyses will be carried out to determine the economic viability and suitability for reducing the environmental impacts. The knowledge gained in the project will be transferred to other application domains and recommendations for the design of circular economy systems and the design of business models will be made available in the form of a guideline.

The project team of "Effizient Nutzen".

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