Research content for the short video 100% Circular_ Utopia 2023

"Imagine a future society with zero waste ... powered by 100% recycled batteries, organics & textiles"

Student Statement: "This video shows how we will achieve a waste-free future utopia through a 100% circular society. Innovative technologies such as self-healing substances and advanced recycling facilities will keep materials in circulation for as long as possible."

100% circular society - A waste-free world through revolutionary approaches

Circular innovation is essential for a sustainable future. Consumption and modern life today are inextricably linked to waste. Packaging, surplus products, defective goods, food scraps and end-of-life products all contribute to the waste problem. However, waste is just a recyclable material in the wrong place. To enable a sustainable future, raw materials from the waste garbage can must be returned to the material cycle to enable a waste-free society.

No materials are disposed of after only a short period of use, but are kept in the cycle as long as possible through reuse, rethink, repair, remanufacture and also recycling processes.

In addition to the central, social dimension of a circular society, innovative technologies are also a building block: modern sorting plants that can ensure efficient separation of the various fractions, filter out materials that can still be reused, and allow the remaining substances to be used again in new ways through efficient chemical recycling.

Also, the development of self-healing materials that can repair themselves when damaged can extend the primary life of the product, contributing to a circular society. An extension of tracking individual materials is offered by digital product passports. These summarize all information about a product from components and materials to information about repairability & reuse.

New business models and distribution access such as leasing and sharing business models, product-as-a-service systems or performance-based contracting, can enable better maintenance and higher efficiency of use.

The renovation of buildings and the efficient recycling of construction waste are major contributors to the circular society. With digitalization as an important driver, e.g., through digital twin, which is updated throughout the life cycle, enabling a basis for later conversion and deconstruction measures.

Research from the Valley:

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