

# MOVECO WP 5 Innovation Tools

## Activity 5.2 Qualification Programme

Different Business Models based on Circular Economy

Case Studies

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KEPLINGER SIEGFRIED  
BUSINESS UPPER AUSTRIA



# Circular Economy System Diagram

Keep the loop as small as possible for maximum resource efficiency!

## OUTLINE OF A CIRCULAR ECONOMY

### PRINCIPLE 1

1

Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows.  
ReSOLVE levers: regenerate, virtualise, exchange

### PRINCIPLE 2

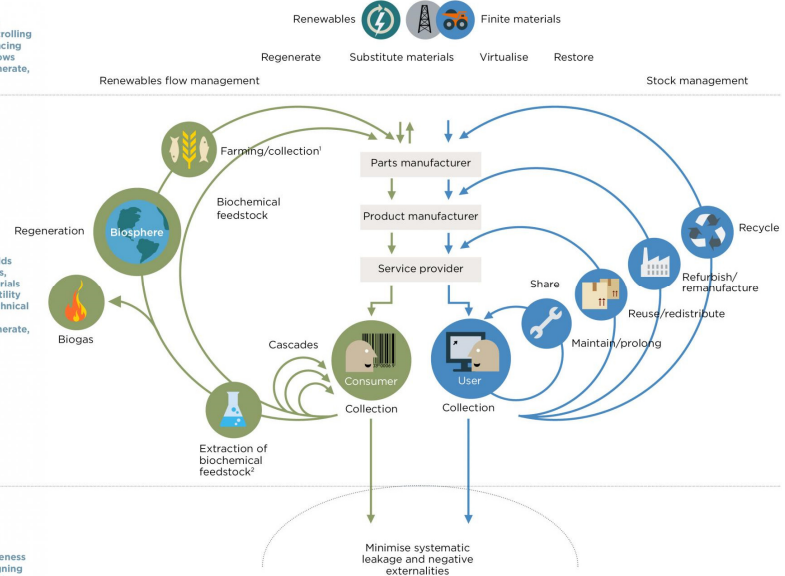
2

Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles.  
ReSOLVE levers: regenerate, share, optimise, loop

### PRINCIPLE 3

3

Foster system effectiveness by revealing and designing out negative externalities.  
All ReSOLVE levers



1. Hunting and fishing  
2. Can take both post-harvest and post-consumer waste as an input  
Source: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Braungart & McDonough, Cradle to Cradle (C2C).

# CASE STUDY 1 - PRODUCT LIFE EXTENSION REUSE ORGANIZED BY NON-PROFIT ORGANISATION

ReVital stands for ecologically, favorably and socially and is the premium brand for high-quality used goods in Upper Austria. The project is funded by the environmental department of the country.

The declared objectives of the Volkshilfe and ReVital partnership are the prevention of waste, the provision of cheap shopping for high-quality second-hand goods and the creation of jobs in the region. Collection points for well-preserved housewares, furniture, electrical, sports and leisure equipment are the waste collection centers. A direct delivery in the shop is possible or if necessary, the goods are picked up.

Examples of work and further information can be found on the internet following this link

[www.revitalistgenial.at](http://www.revitalistgenial.at)



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## CASE STUDY 2 – PRODUCT LIFE EXTENSION ROSENBAUER: REPAIR, UPGRADE & REFURBISHMENT

A general overhaul from Rosenbauer quickly updates a fire-fighting vehicle with the latest technology. Municipal and initial attack vehicles as well as industrial and air crash tenders can be fitted with the latest fire-fighting equipment. Even individualized suggestions for modernization are possible. All installed modules come from the latest product lines and reflect the best quality.



before



after

## CASE STUDY 2 – PRODUCT LIFE EXTENSION ROSENBAUER: REPAIR, UPGRADE & REFURBISHMENT

### Turn old into new

Years of demanding use of the equipment leave their mark on the paint and bodywork. Rosenbauer performs a wide range of refurbishment work on vehicles and equipment. From body module to chassis, Rosenbauer has the best available solutions for all refurbishment needs.



Front view of L32 BEFORE



Front view of L32 AFTER

## CASE STUDY 2 – PRODUCT LIFE EXTENSION ROSENBAUER: REPAIR, UPGRADE & REFURBISHMENT

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### **New fixtures for new requirements**

Requirements change. Upgrading fixtures on existing vehicles makes it possible to handle new challenges. Here as well, Rosenbauer is a competent partner. Vehicles are routinely retrofitted with new extinguishing and lighting towers, water monitors, mixing systems, or stowage for storage of new equipment. Rosenbauer can handle conversions as well. Rosenbauer can reorganize and optimize stowage systems with rotating compartments, storage for breathing apparatuses, or sliding trays with a more functional arrangement. Lockers can be custom-converted for new equipment.

Examples of work and further information can be found on the internet following this link  
<https://www.rosenbauer.com/en/de/rosenbauer-world/service/in-use-around-the-world/repairs-and-general-overhauls>

## CASE STUDY 1 – RESOURCE RECOVERY PDR PRODUCTS THROUGH RYCYCLING

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PDR has been an established player for material and substance-based recycling and recovery for more than 20 years. Their utmost priorities are resource conservation and sustainability. Based in the town of Thurnau in Upper Franconia, they also work for global players such as HP. As a medium-sized company with a workforce of around 60 employees, they are known for expertise in PU chemicals and handling of hazardous waste.

PDR has many years of experience in the treatment of spent PU foam cans. The nation-wide PDR industry solution has become well established in the market. They are proud of a recovery rate of around 80%. These recovered raw materials are returned to the production cycle.

Examples of work and further information can be found on the internet following this link  
<https://www.pdr.de/en/cover-page/>



## CASE STUDY 2 – RESOURCE RECOVERY TRODAT PRINTERS

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As the world market leader in stamp products, Trodat sees itself as having a special obligation and has been setting a good example for climate protection for years. Already in 1993, when the Kyoto Protocol was not on everyone's lips yet and the strict Austrian environmental laws were not yet up to date, Trodat set measures for a better use of energy.

Approximately 80% of all production waste is recycled, 100% recycling of mechanically unclaimed parts.

The original Printy 4.0 is much smaller, lighter than its predecessor and consists of up to 65% \* recycled plastic. This saves up to 49% \* CO<sub>2</sub>

Examples of work and further information can be found on the internet following this link  
[http://www.trodat.net/de-DE/uebertrodat/nachhaltigkeit\\_umwelt/Pages/Wir-tragen-Verantwortung.aspx](http://www.trodat.net/de-DE/uebertrodat/nachhaltigkeit_umwelt/Pages/Wir-tragen-Verantwortung.aspx)

## CASE STUDY 1 – CIRCULAR SUPPLIES

### FABULA ORGANIC PENCIL

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The company Fabula C Ltd. Produces pencils that are made of recycled organic waste from coffee, tea and flowers. Fabula calls him the most sustainable pencil in the world.

The pencil is not only made from organic waste, its spiky waste also serves as plant nutrients (gentle fertilizer) and it can grow a new plant from the used Fabula pin.

If the pen has become too short to write, it must be dissolved in water for two days. The seeds embedded in the end of the pen are released in this way. The solution of seeds and nutrients can then be poured into soil so that a seedling can grow in two to three weeks.

Examples of work and further information can be found on the internet following this link  
<http://www.fabulaorganicpencil.com/>

## CASE STUDY 2 – CIRCULAR SUPPLIES FEPLO ECO BOARDS

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Feplo manufactures waterproof ECO boards. This building material consists of pressed parts of recycled beverage cartons, which would otherwise end up in landfills.

Not only are these panels 100% ecological, they also meet the very high requirements in terms of dimensional stability, homogeneity and little change in product properties. The numerous advantages of the ECO boards include their excellent workability, low weight, fair price and outstanding thermal insulation properties.

Unlike other materials used to make sheets, the ECO boards are waterproof. Therefore, they offer optimal possibilities for use in modern construction - for interior and exterior - and various other applications. This is a big advantage in the market.

Examples of work and further information can be found on the internet following this link

<http://www.feplo.rs/en/index.html>

## CASE STUDY 1 – PRODUCT AS A SERVICE ISKRAEMECO SMART METERS

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Iskraemeco is one of the leading manufacturers of smart meters. When switching from a linear to a circular economic model, Iskraemeco enters into new relationships with suppliers and customers.

Iskraemeco has developed an innovative, modular metering platform that incorporates all aspects of the Fair Meter concept. The platform enables the smooth integration of intelligent measurement functions of the newer generation into the intelligent network.

As part of this sustainability strategy, Iskraemeco seeks answers to key issues in the electrical industry: conflict minerals, rare and toxic materials, unfair working conditions, high energy consumption, and increases in the amount of electronic waste and resource use.

Examples of work and further information can be found on the internet following this link

<http://www.iskraemeco.com/en/>

## CASE STUDY 2 – PRODUCT AS A SERVICE

### PHILIPS LIGHT AS A SERVICE

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Architect Thomas Rau worked with Philips to purchase light as a service. The end result was a bespoke 'pay-per-lux' intelligent lighting system to fit the requirements of the space, at a manageable price. Philips retain control over the items they produce, enabling better maintenance, reconditioning and recovery.

The idea of a 'performance economy', developed by Walter Stahel since the 1970s, insists on the importance of selling services rather than products. Through this method, manufacturers can retain greater control over the items they produce and the embodied energy and materials, thus enabling better maintenance, reconditioning and recovery. Customers benefit too, as they only pay for the service they require and use, and often receive a better service as the manufacturer has a greater interest in providing a product that lasts.

Examples of work and further information can be found on the internet following this link

<https://www.ellenmacarthurfoundation.org/case-studies/selling-light-as-a-service>

## CASE STUDY 1 – SHARING PLATFORM MODO CAR SHARING

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Modo is a Vancouver-based consumer car sharing co-op. Launched in 1997, with just two cars and 16 members, Modo has grown to 16,000 members and a fleet of over 500 sports cars, sedans, trucks, SUVs, vans and hybrids—all available to share at \$4/hour through a smartphone app and website. Member-owners are shareholding members of the co-op which means they get a vote as well as the best rates for carsharing.

Examples of work and further information can be found on the internet following this link  
<https://www.modocoop/>

## CASE STUDY 2 – SHARING PLATFORM STOCKSY PHOTO SHARING

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Stocksy is a stock photo site where contributing photographers are also owners. A “highly curated collection” of royalty-free stock photos, the platform is a cooperative that believes in creative integrity, fair profit sharing, co-ownership, and every voice being heard. It’s a new twist on traditional co-ops. As they state on the website, “Think more artist respect and support, and less patchouli.”

Contributing Stocksy photographers receive 50% of a Standard License Purchase and 75% of an Extended License Purchase. Every Stocksy contributor receives a share of the company.

Examples of work and further information can be found on the internet following this link  
<https://www.stocksy.com/>