Contemporary Issues in Business, Management and Economics Engineering

VILNIUS TECH
Faculty of Business Management

MATE
HUNGARIAN UNIVERSITY OF AGRICULTURE AND LIFE SCIENCES

CIRCULAR ECONOMIC BUSINESS SOLUTIONS FOR THE EASTERN EUROPEAN COUNTRIES, OPPORTUNITIES WITHIN THE EUROPEAN GREEN DEAL

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EUROPEAN GREEN DEAL

„The Green Deal comes with important investment needs, which we will turn into investment opportunities. The plan that we present today, to **mobilise at least €1 trillion**, will show the direction and unleash a green investment wave."

SUSTAINABLE SOLUTION OR ECONOMIC POLICY RESPONSE TO THE CHINESE BAN?

What to do?

what is the goal? creating a sustainable economic system **and/or** avoiding an another **economic crisis!**

cutting emissions, creating jobs and making boost innovations

INTRODUCTION - OPPORTUNITY TO TRANSFORM

EUROPEAN GREEN DEAL

A just transition

To help drive the change we need, I will put forward my **plan for a future-ready economy, our new industrial strategy.**

We will be a world leader in **circular economy** and clean technologies. We will work to decarbonise energy-intensive industries.

ble or circular economy, where the value of is maintained in the economy for as long as aste minimised, is an essential contribution to

op a sustainable, low carbon,
OMPETITIVE economy.

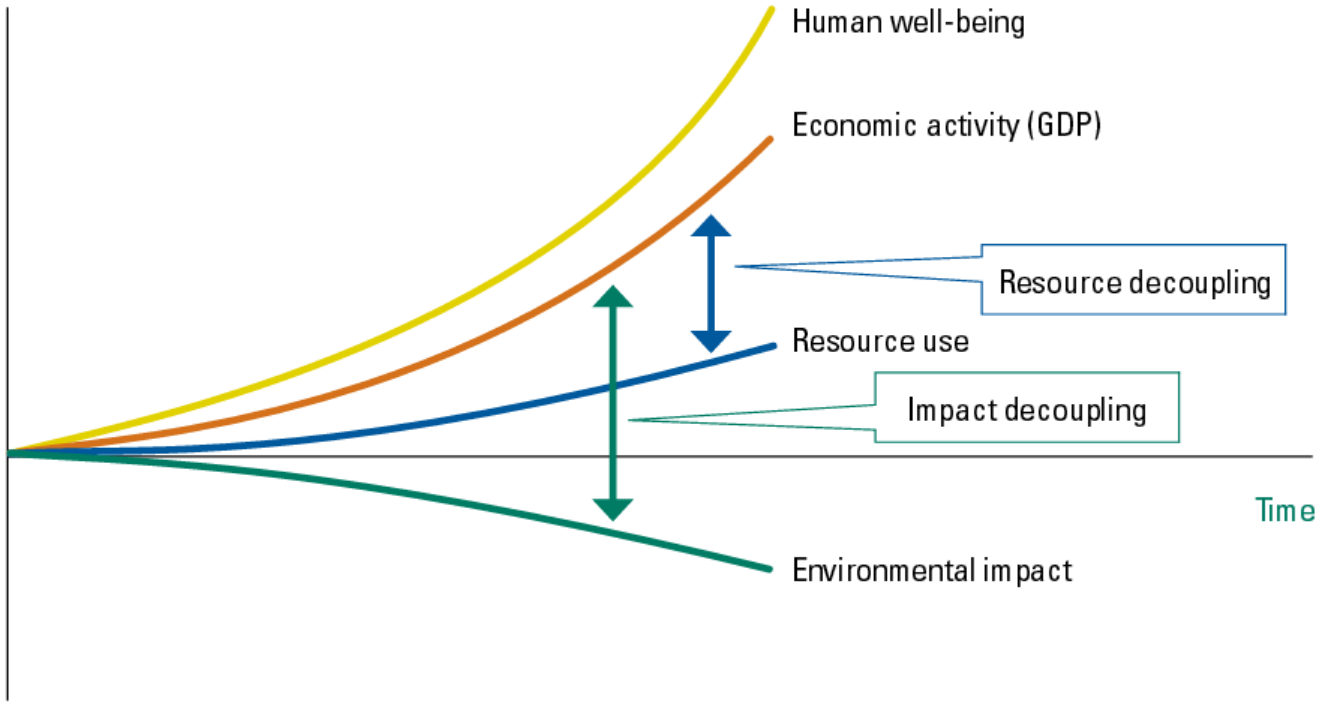
OOST the EU's competitiveness
inst scarcity of resources and volatile
prices, **help** **e NEW BUSINESS opportunities** and
innovative, t ways of producing and consuming
(Decemeber

BOOST

CIRCULAR ECONOMY / SUSTAINABLE DEVELOPMENT

Circular economy is the result of moving from a **simple impact reduction** model to a model of absolute **value creation** that is positive, both socially, economically, environmentally…

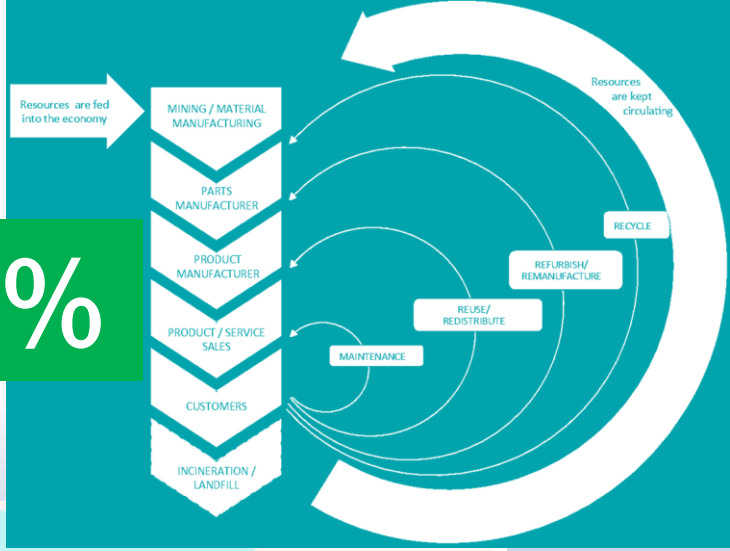
…..the central element is the *"decoupling" of **economic growth** from an increase in **resource use** and reduction of **environmental impacts** (UNEP, 2011).*



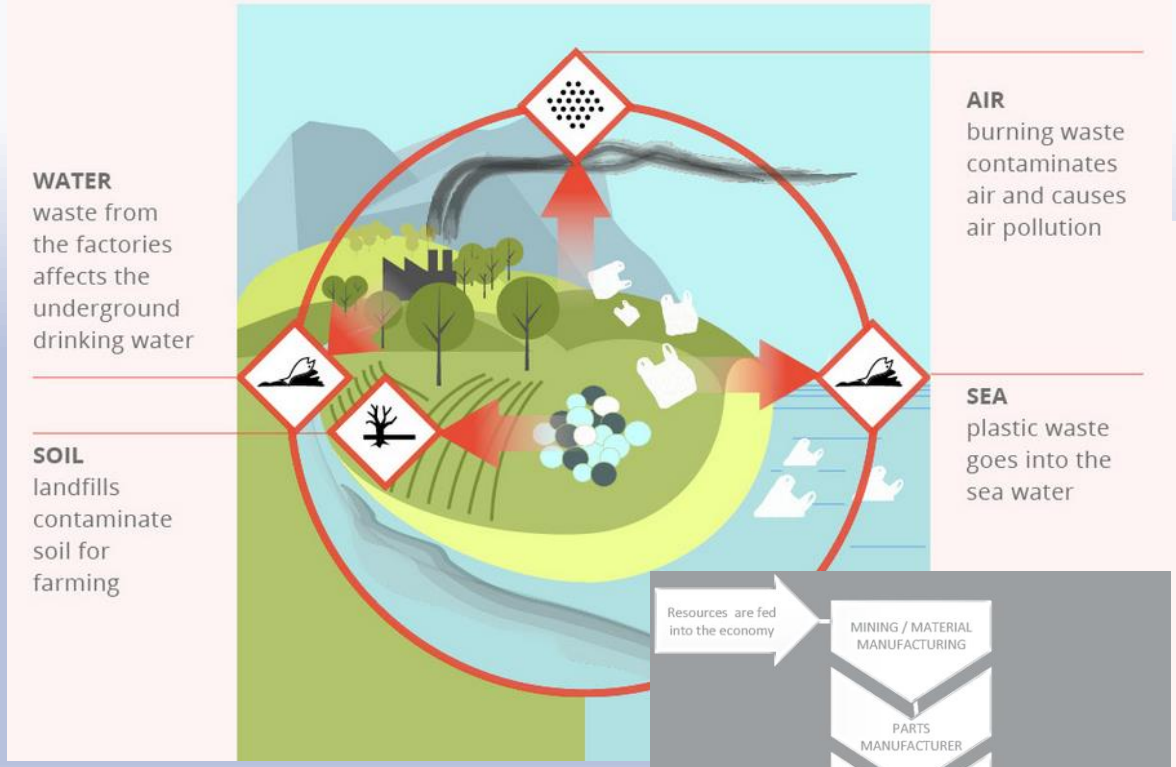
UNEP, 2011

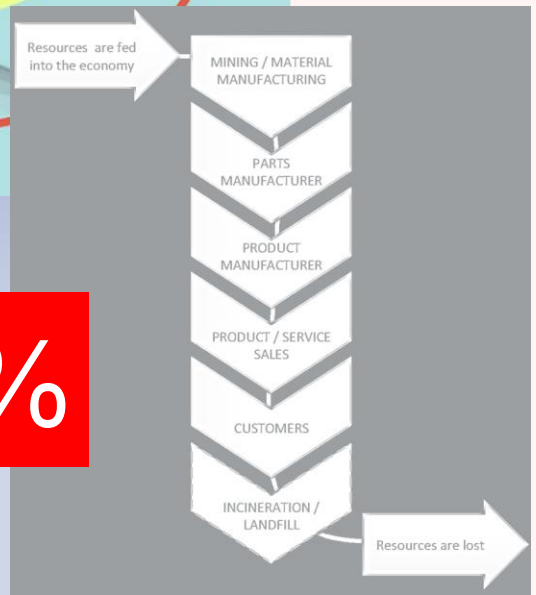
WHY CIRCULAR ECONOMY?

Circular: 12 %



Source: Guldmann-Remmen, 2018





Linear: 88 %

PRINCIPLES OF CIRCULAR ECONOMY
IN THE EASTERN EUROPEAN COUNTRIES

1 - Principle of Inputs

In the case of inputs, the system is basically predestined for sustaining the flow of **renewable energy resources**, named **'FLOW MANAGEMENT'**, and during servicing technological processes, it aims to perpetually circulate reserves instead of hoarding them, named 'stock management. They mainly achieve this by sustaining the material flow, most notably **via increasing the share of SERVICES.**

2- Principle of Sustaining Cycles

The previously mentioned biological and technological cycles or cycle processes **close system processes** via the different-length loops. Circular economic solutions offer development branches in a way that they assure these resources are always at hand through the **MATERIAL CYCLES** (biological base materials and raw materials), on the highest possible level (**f. e. the circulation of soil nutrients, water circulation**). The new product cycles of circular economic models are mainly generated within the technological cycles, by reacquisition of resources, or modernisation, repair of technological systems.

3 - Principle of Outputs

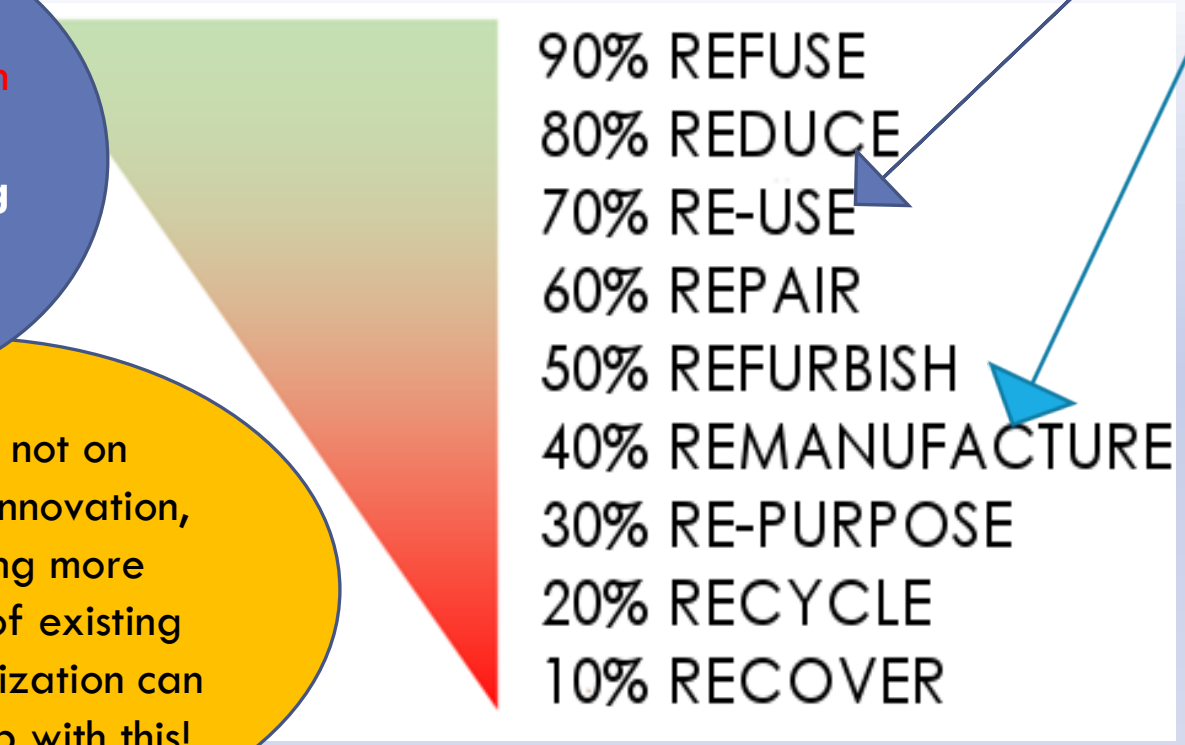
The main aim TO AVOID the negative and positive EXTERNALITIES. This includes planned soil usage, avoiding water- and noise pollution, preserving good health, avoiding the usage and generation of toxic materials, avoiding incorrect business solutions, and completing all the procedures listed by **using the systems of LOCAL resource usage.**

(Ellen MacArthur Foundation, 2015)

PRIORITY LEVELS OF CIRCULATION

market players need to find each other
big data, sharing platforms, cloud systems

The focus is not on technological innovation, but on making more effective use of existing resources! Digitization can effectively help with this!



Part of BAU – business as usual

Car market: 80 % used car

Used clothes market on the rural areas

Business Model innovation

….TO USE OUR PRESENT CAPACITES MORE EFFICIENT WAYS!

This is how we can assure that the preferred process is completed with as

1 **low material usage** as possible.

The **second priority** is to minimise the **energy used**. 2

REUSE?

High quality 'English' used products!

THE PROBLEM! WE DONT KNOW IT IS CIRCULAR OR LINEAR!

THE FLOOR IS YOURS!

Please!

ret-reading company

ENGLISH USED CLOTHES

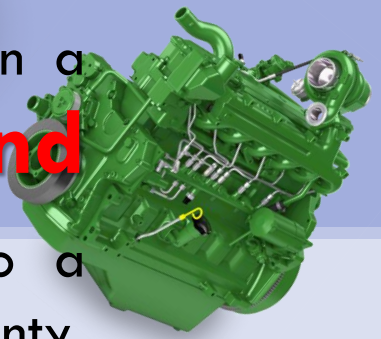
Tel.:06/20 349 9995

WHOLESALE DEALER

REFURBISHED

Next life materials and products work when a company can efficiently recover and re-condition its products after use and then put the same products into the market to **earn a second or third income.**

THE PROBLEM! Production and consumption located different places!



TATA MOTORS ASSURED is a good example here. It's more than a second hand car dealership. **Cars are handpicked and refurbished in Tata workshops** and then undergo a certification process. Customers are even offered financing options and warranty.

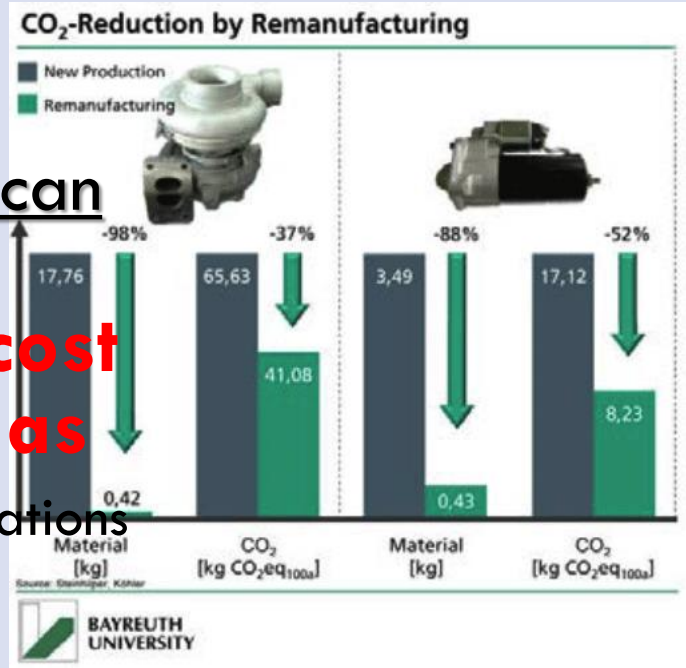
LOCAL SERVICE PROVIDER!

THE PROBLEM! The product travels linearly!

REMANUFACTURING

Not all products can be reconditioned in their entirety but most products have certain components that carry a high value.

Not just products, but often materials themselves have an embedded energy component that makes them even move valuable then their virgin source.

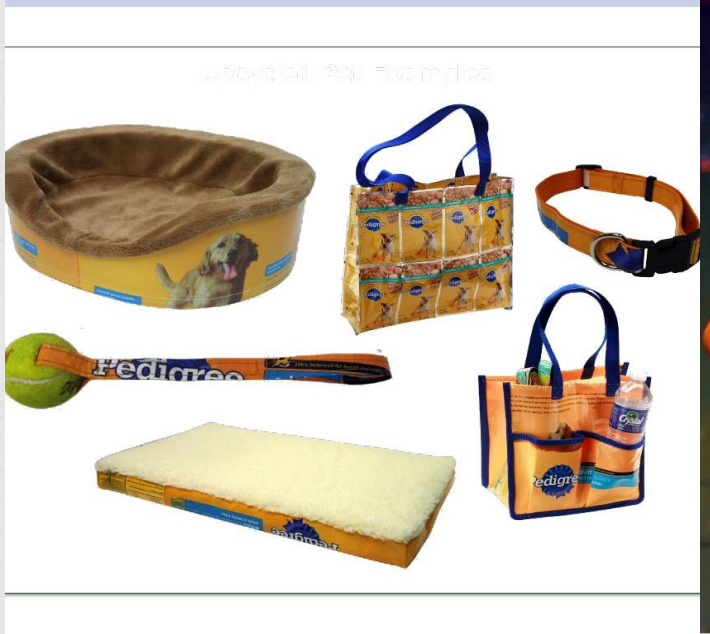


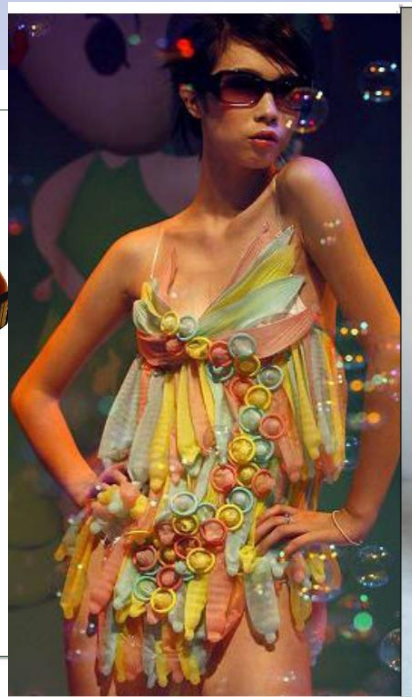
With the right design and remanufacturing capabilities, they can be put together to form new products. **THIS IS PRODUCT TRANSFORMATION**. **For BMW, it can mean a 50% cost saving for customers buying remanufactured parts as compared to new ones.** You get exactly the same quality specifications as a new BMW part subject to the same **24-month warranty.**

UP-CYCLING (RE-PURPOSE)

The problem! Small market!

This is the first method which shows **some similarity with current trends** to some extent. This is caused due to the so-called '**retro**' perspective being a fad all around the year, which supports the various methods of reusing already used products.





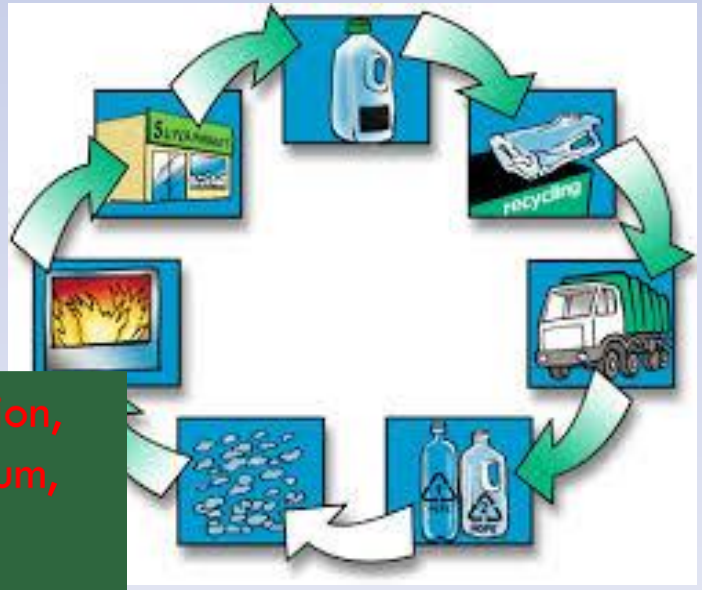
RECYCLE OR DOWNCYCLE

The problem! **Low efficiency** of selection!

During recycling, circularity policies are only implemented in a faded manner, since **<u>we cannot speak of sustaining the product function, or creating a new function</u>**.

Nowadays the materials **used to manufacture products are extremely complex** . This is one of the reasons for the product returning facilities **not working** sufficiently even in countries like the Netherlands!

glass



paper

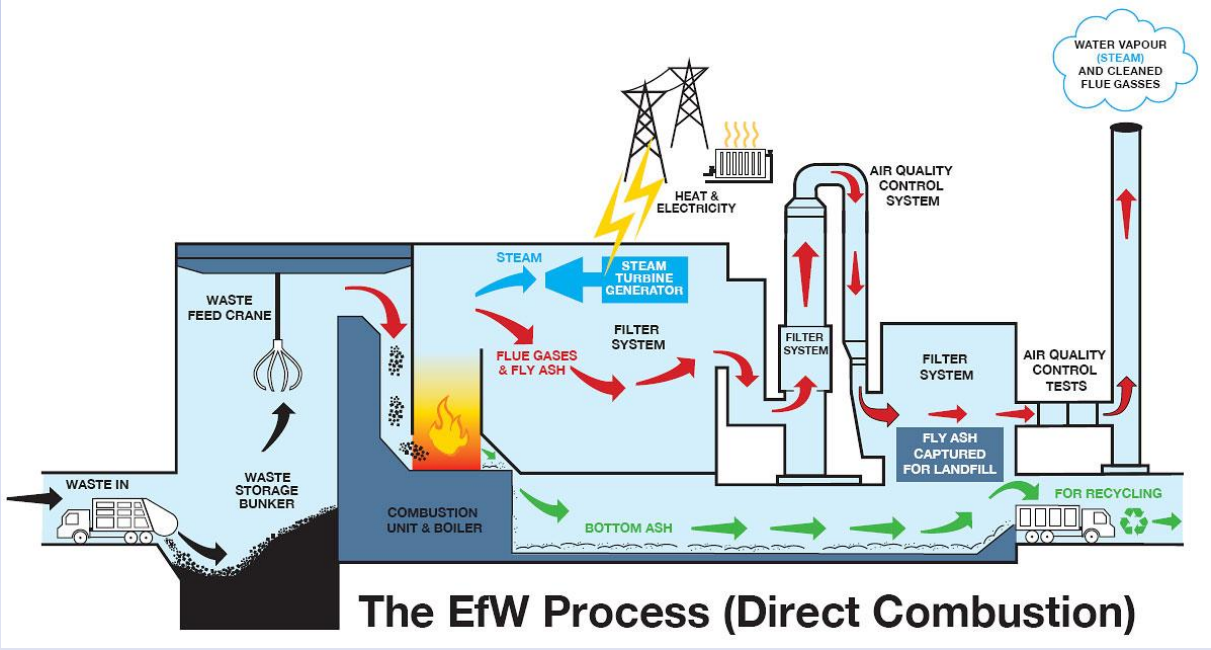
Dust and Ash	Brick Material
Office Paper	Toilet Paper
Water Bottle	Plastic Bag

Recycling compared to production, it saves 95% energy on aluminum, 80% on plastic and 60% on paper.

Only energy recovery – we lose the material!!

RECOVERY (NO WASTE SELECTION!!!)

Recovering energy from waste is basically one of the most primitive methods of waste treatment processes. People usually associate to energy produced in trash combustors when thinking about this method, which may have a significantly different efficiency due to differences in the actual facility



CIRCULAR 'EXPERIENCES' IN DIFFERENT EUROPEAN COUNTRIES

Circular business
vs.
Normal business

Reuse network by HÁDA

Import products - used car tyre depo and ret-reading company somewhere in Romania

Sharing economy vs. Uber

The used products which would not be sold in western countries are better to be exported to regions where they meet the demand standards. The problem takes place at the cases when the results of overconsumption end up in second hand stores of other nations without any usage. Therefore we suggest to extend national boundaries to reach higher levels of circularity on EU level, but the appropriate legislation is required to avoid linear processes.

THANK YOU FOR YOUR ATTENTION!

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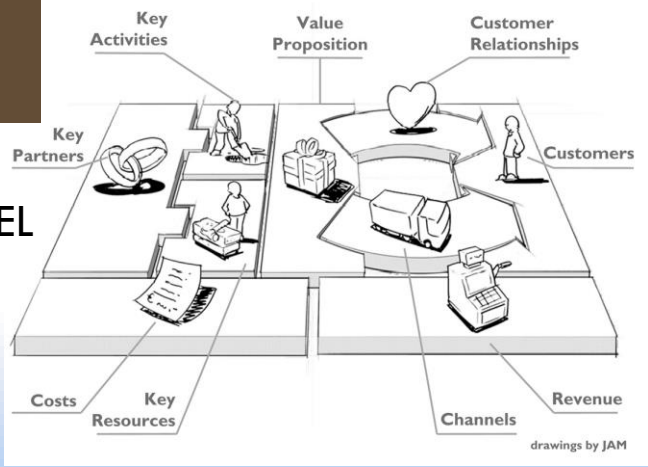
CIRCULAR ECONOMIC VALUE (CEV)

VALUE PREPOSITION

+

BUSINESS MODEL INNOVATION



$$CEV\% = 100 - \left(\frac{\left(\frac{M_p}{M_p + M_s} + \frac{M_d}{M_r + M_d}\right) + \left(\frac{E_f}{E_s + E_f} + \frac{E_l}{E_c + E_l}\right)}{4} \right) \times 100 \quad (1)$$

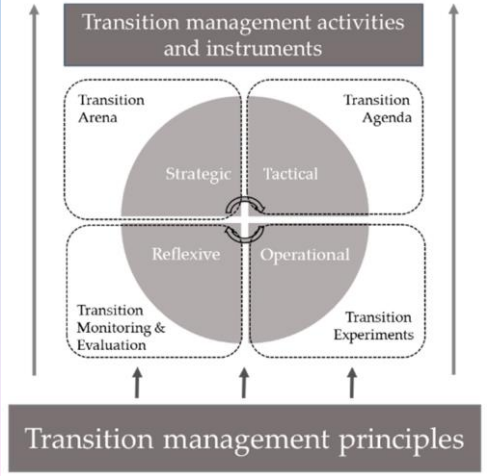
M_{lin} M_{lout} E_{lin} E_{lout}

where:

CEV *= Circular economic value*
M_{lin} *= Material volume on the input side (linear)*
M_{lout} *= Material volume on the output side (linear)*
M_p *= The amount of primary raw materials used for the manufacturing of the product*
M_s *= The amount of secondary raw materials used for the manufacturing of the product*
M_d *= Amount of non-recyclable materials remaining after the product is used (linear)*
M_r *= Amount of recyclable materials remaining after the product is used (circular)*
E_{lin} *= Energy value on the input side (linear)*
E_{lout} *= Energy value on the output side (linear)*
E_f *= Amount of non-renewable energy used during the manufacturing of the product*
E_s *= Amount of renewable energy used during the manufacturing of the product*
E_l *= Amount of energy produced during disposal, after the product was used (linear)*
E_c *= Amount of energy used for the product's recyclability, after the product was used (circular)*

Silvestri et al., 2018

Problem analysis with CEV + TM



CEV Studies on different fields:

- Event Management – An Olympic Game Case Study
- Waste treatment process
- Plastic waste utilisation in Africa
- Diary sector, milk production