CIRCULAR ECONOMY AND ITS DEVELOPMENT IN LATVIA

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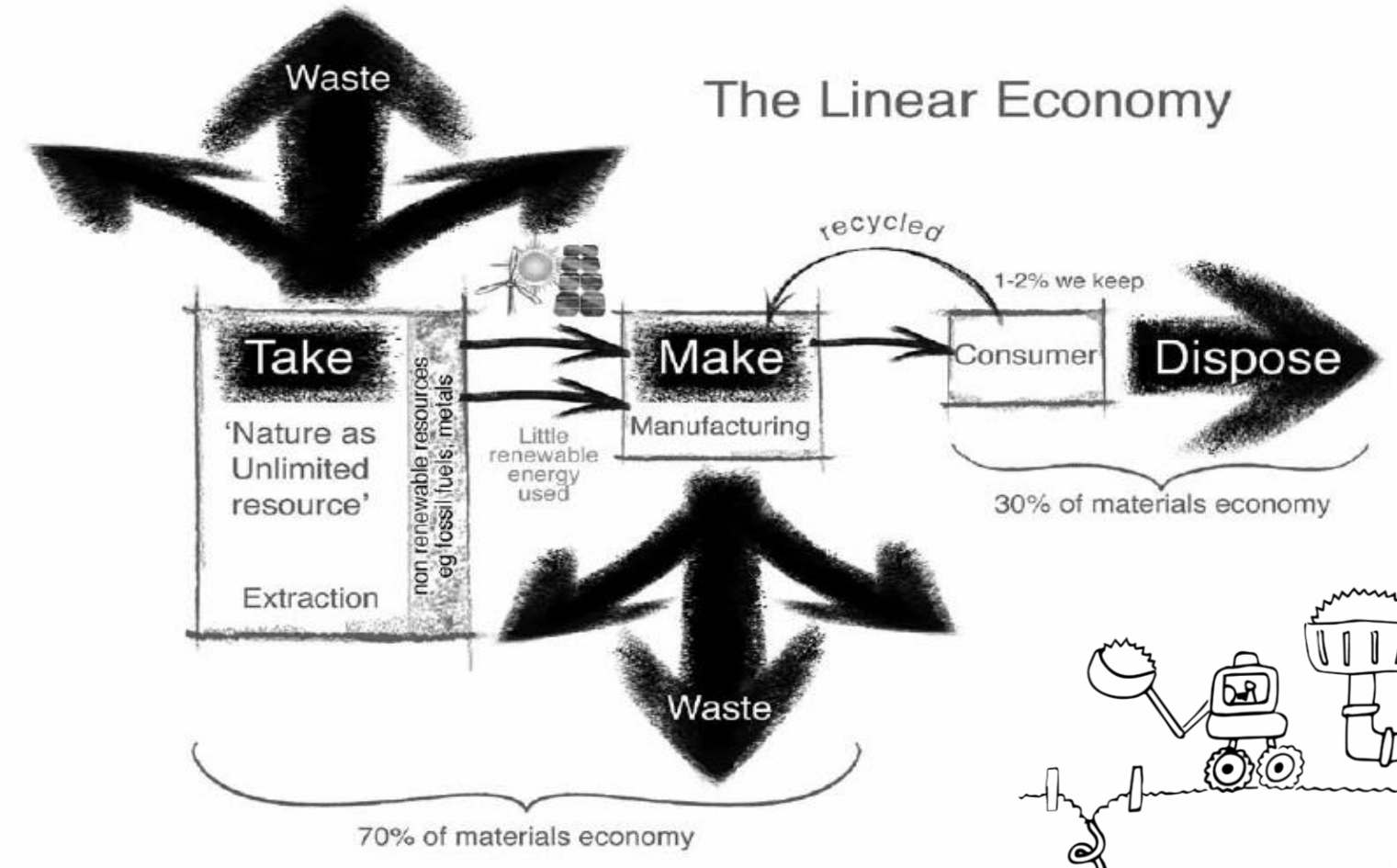
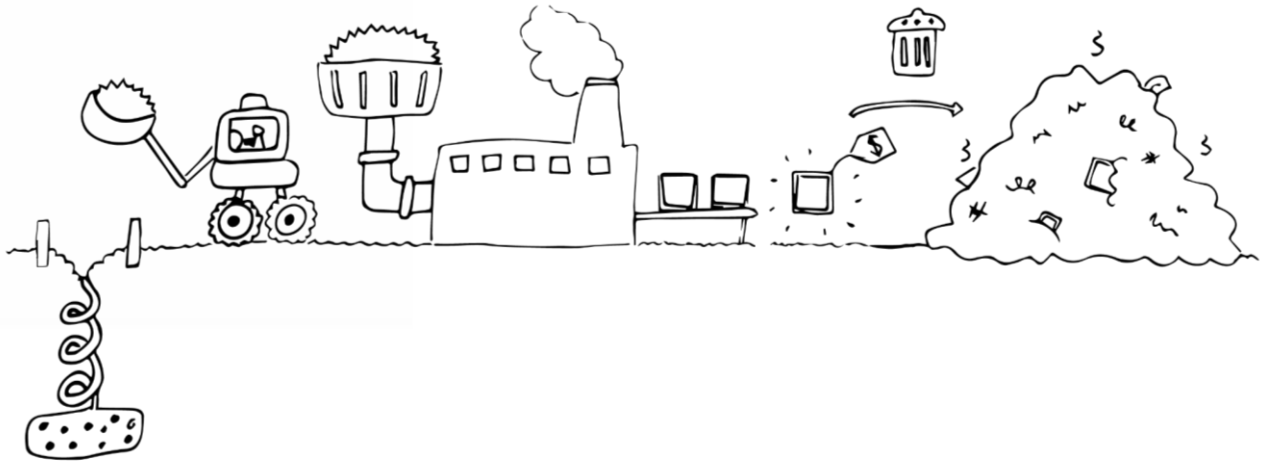
The Linear Economy



- Current economic model of 'Take-Make-Dispose'
- World as unlimited resource and waste bin;



Disadvantages of Linear economy

Resources like fossil fuels, food and water are increasingly hard to get.

Biodiversity is in decline worldwide. Still, we seem to take the ecological services provided by the natural world for granted.

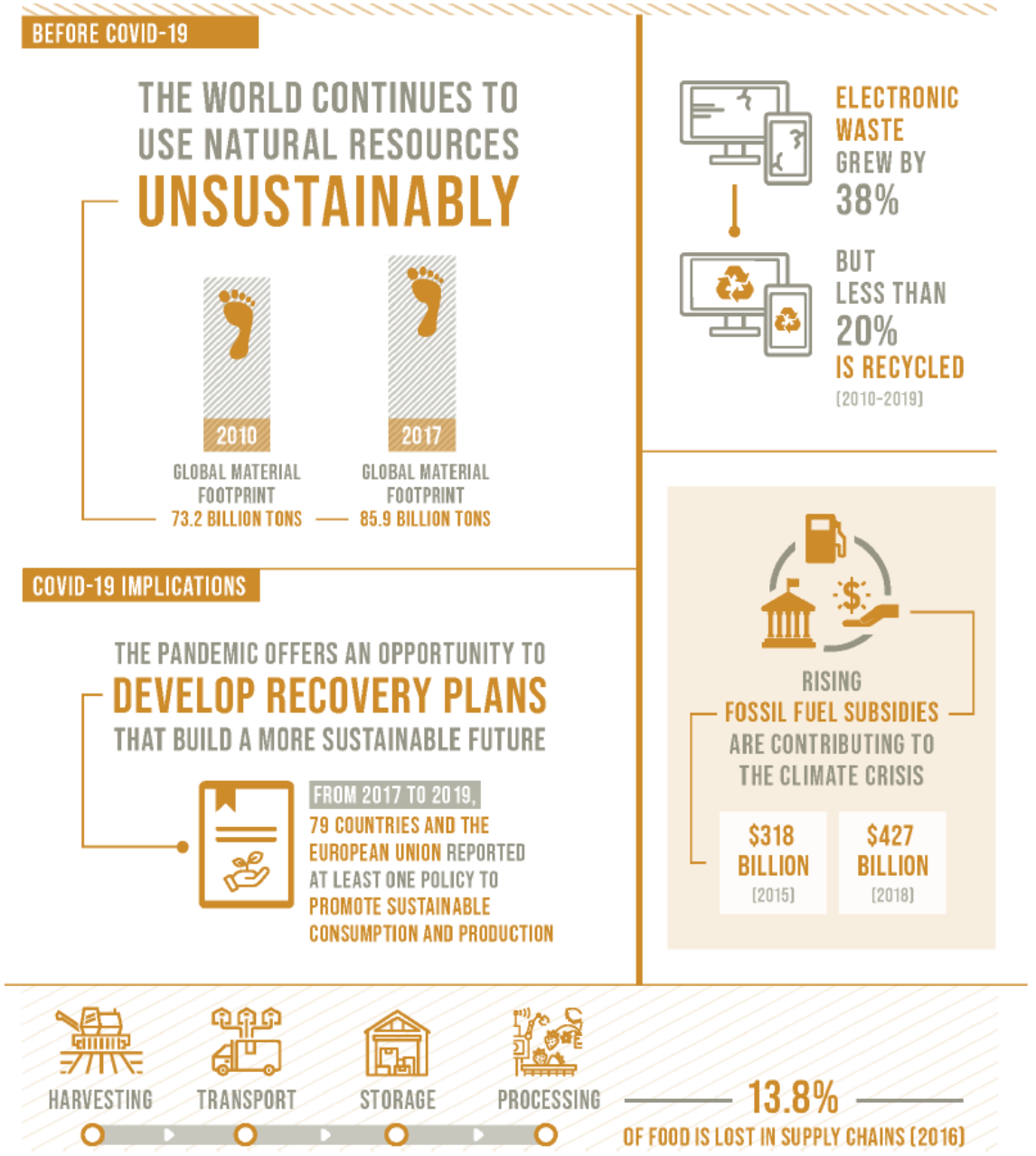
The financial system almost crashed the entire economy.

Dependency on cheap energy, cheap materials, cheap credit

Sustainable development goals

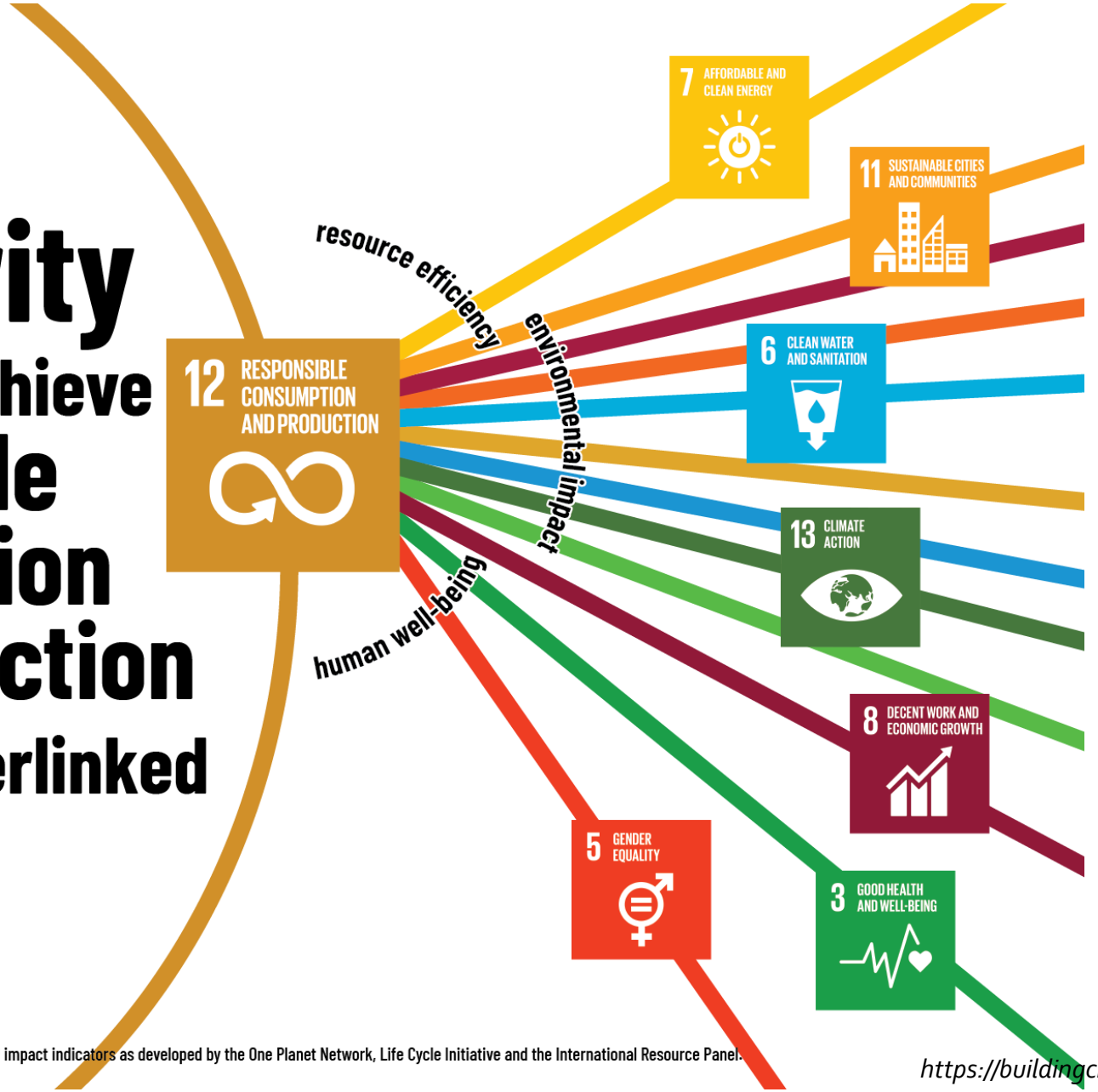
12. Responsible consumption

- Sustainability management of natural resources.
- Reduction of waste.
- Environmentally sound management of chemical and all types of waste throughout their life cycle.
- Food effieciency and food waste prevention.
- Sustainable production.
- Sustainable living – consumption patterns of households and individuals.



Circularity

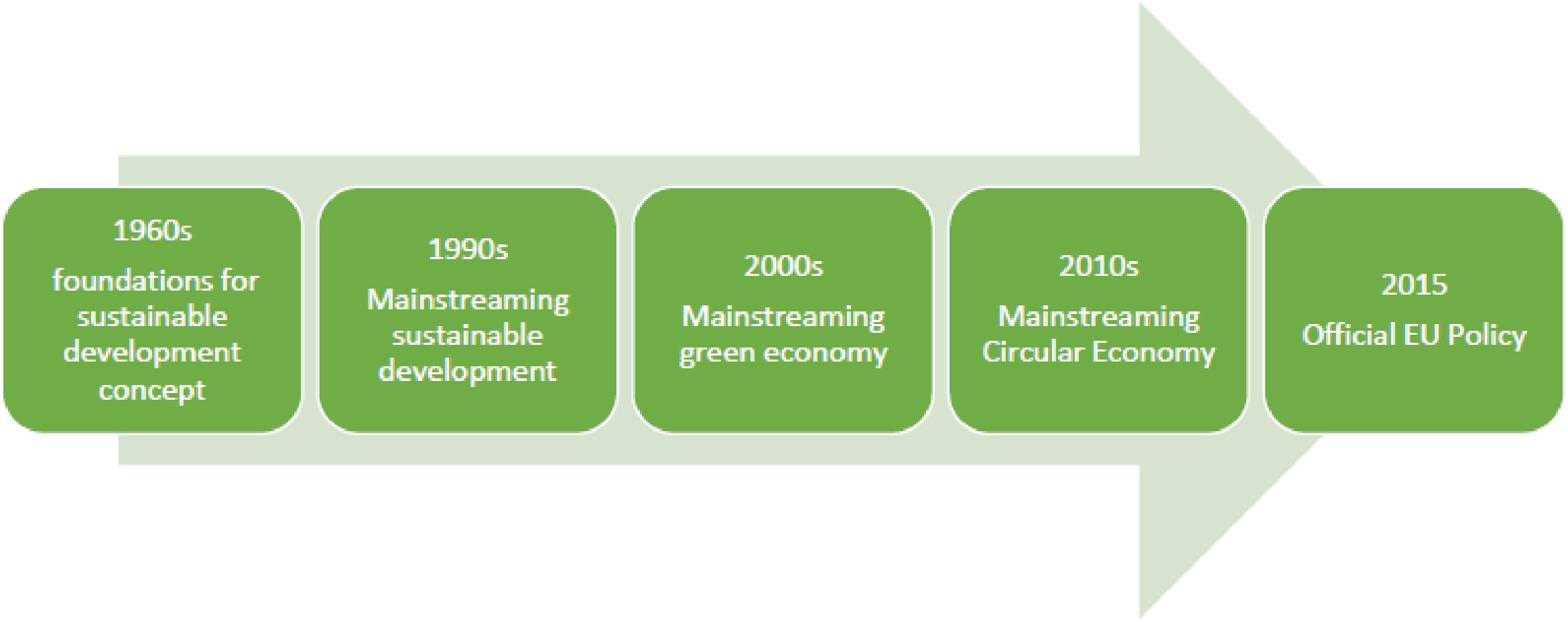
is a way to achieve sustainable consumption and production and other interlinked SDG goals



Based on the One Planet Network Indicators of Success and the SCP impact indicators as developed by the One Planet Network, Life Cycle Initiative and the International Resource Panel.

https://buildingcircularity.org/

Main milestones towards the Circular Economy policy in the EU



What is Circular Economy?

Recycling?

Natural Capitalism?

Resource Efficiency?

Sustainable Production & Consumption?

Performance Economy?

Internet of Things?

Lean Production?

Non-toxic materials?

Blue Economy?

Biomimicry?

Green Growth?

Bioeconomy?

Eco Design?

Disruptive Innovation?

Regenerative Design?

Reduction?

Industrial Ecology?

Reuse?

Green Economy?

Eco-Efficiency?

Cradle to Cradle?

Cleaner Production?

Recovery?

Closing Loops?

Produst as Service?

Eco-innovation?

Circular economy in nature – look for biomimicry

- In nature, there is practically no such concept as “waste”;
- Waste of one creature – often is a nutrient for another;
- Human pose technogenic risks are generate a large amount of waste in a linear economy.

How can waste build capital rather that reduce it?

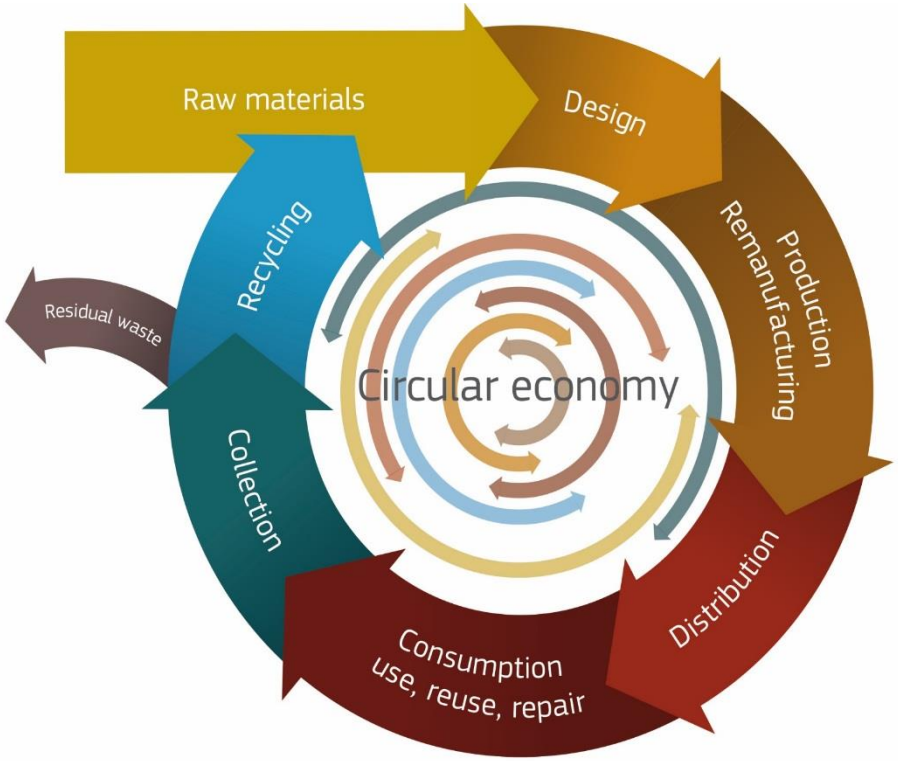
HERE IS A QUOTE WE RATHER LIKE:

“The goods of today are the resources of tomorrow at the resource prices of yesterday”

- WALTER STAHEL

From a linear economy …

… to a circular economy



"**A circular economy** is an alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, *extract the maximum value from them* whilst in use, then **recover and regenerate products and materials** at the end of each service life."

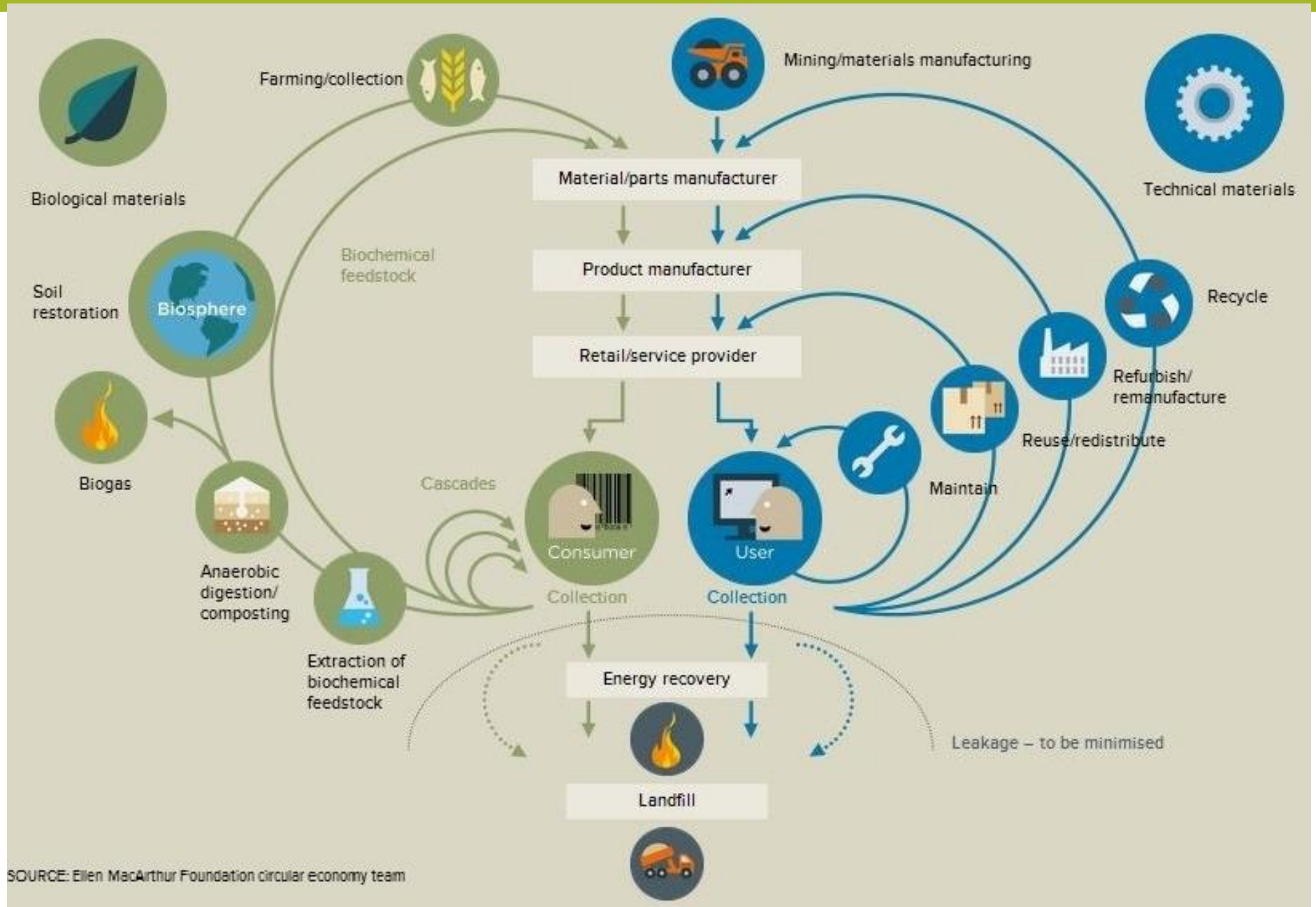
~ Waste & Resource Action Programme – UK (WRAP)

What is Circular Economy?

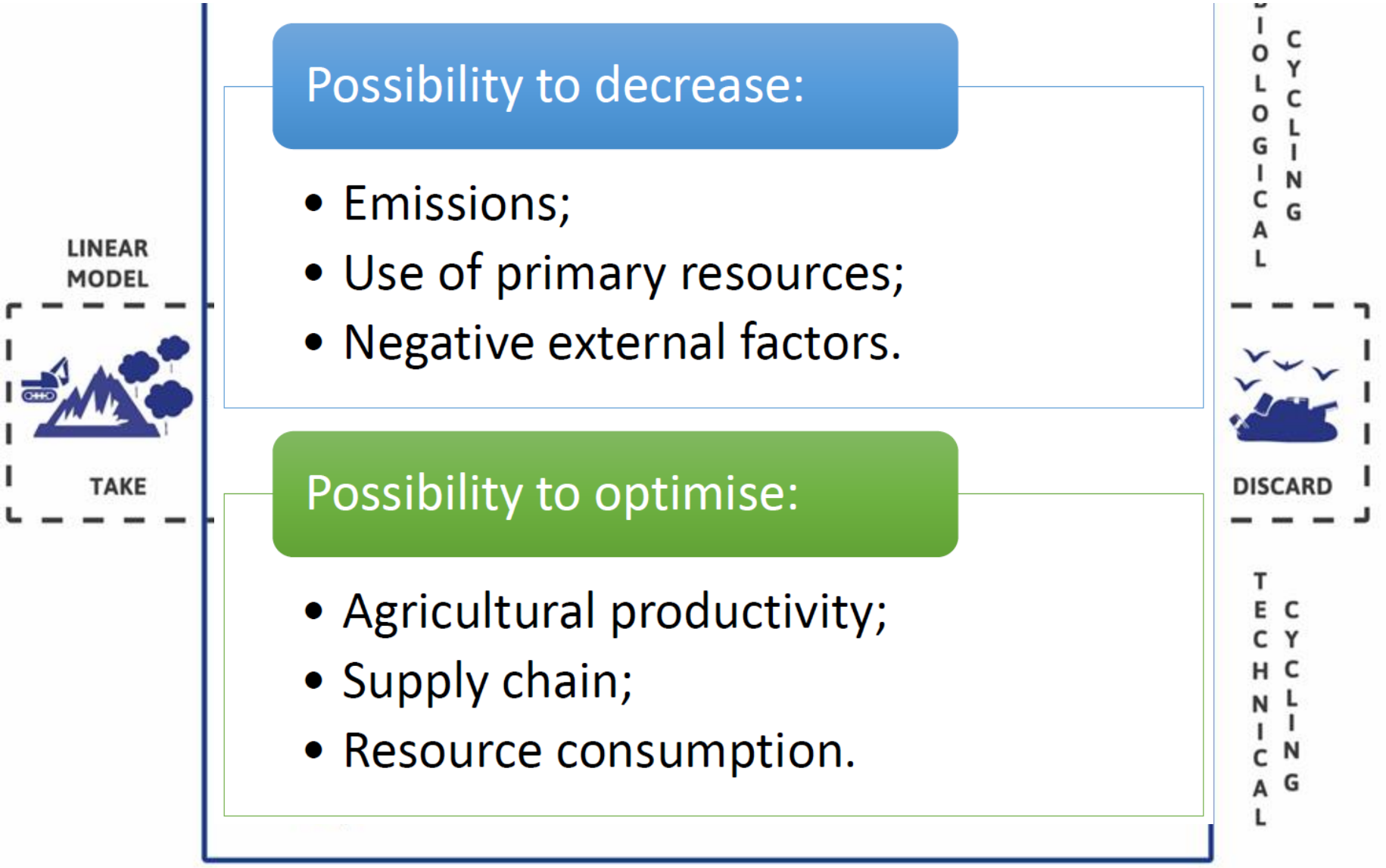
Current definition:

"Circular Economy" is an economy "that is **restorative** and **regenerative** by **design**, and which aims to keep products, components and materials at their **highest utility** and **value at all times**, distinguishing between **technical** and **biological cycles**"

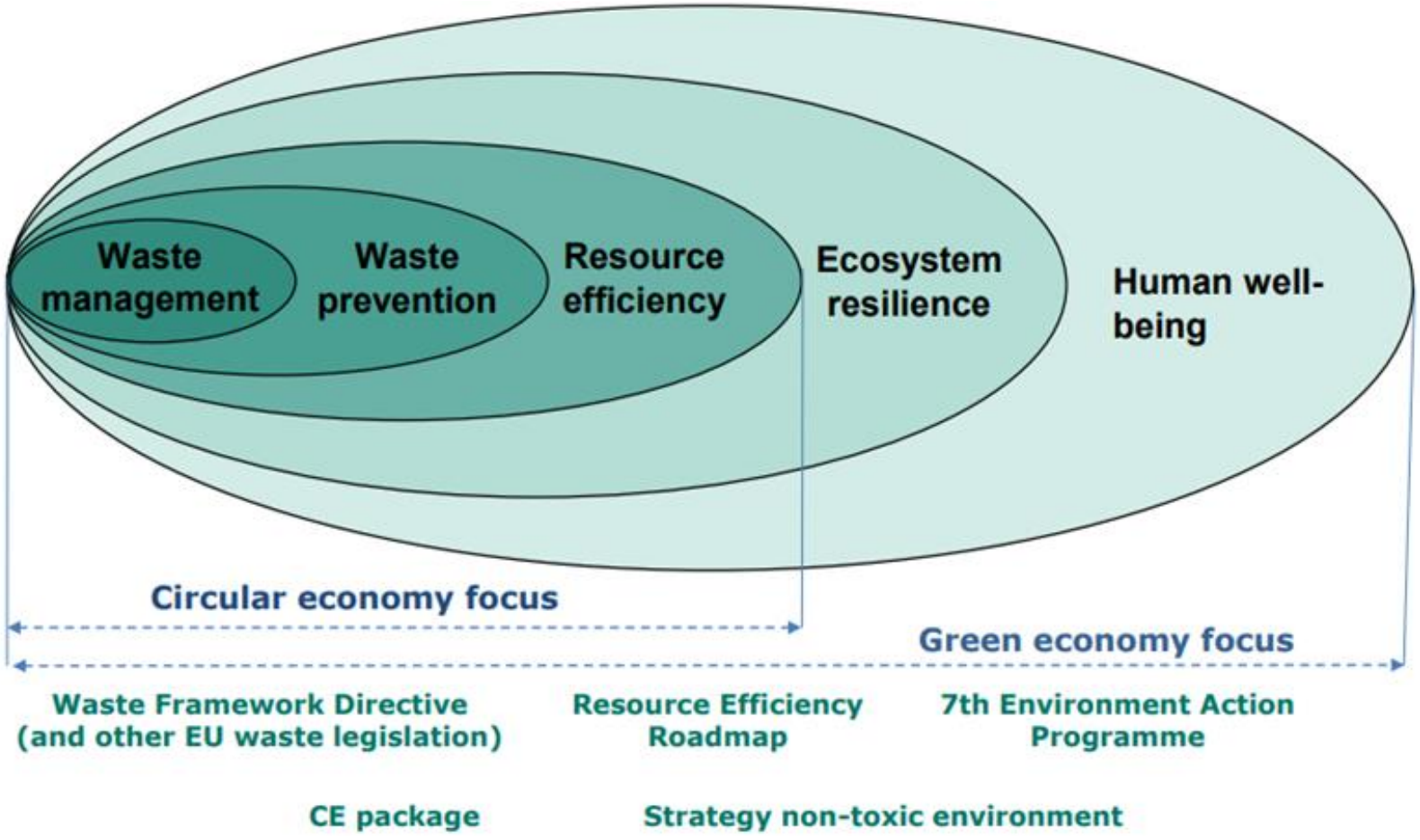
Source: ***Ellen MacArthur Foundation****, 2016*


Farming/collection
Mining/materials manufacturing
Biological materials
Technical materials
Material/parts manufacturer
Biochemical feedstock
Product manufacturer
Soil restoration
Biosphere
Recycle
Retail/service provider
Refurbish/ remanufacture
Biogas
Reuse/redistribute
Maintain
Cascades
Consumer
User
Anaerobic digestion/ composting
Collection
Collection
Extraction of biochemical feedstock
Energy recovery
Leakage – to be minimised
Landfill
SOURCE: Ellen MacArthur Foundation circular economy team

Environmental benefits of circular economy



CE and Green Economy



(European Environment Agency, 2016, p. 31)

According to the European Environmental Agency (2015), the **circular economy is a relevant part of the green economy**, which deals also with the **human welfare** (i.e. lifestyles and consumption models for an extensive and inclusive well-being) and the **ecosystems resilience** (i.e. natural capital and ecosystem services preservation).

EU wants to achieve climate neitrality by 2050
How to get it on track?

- investing in new environmentally friendly technologies,
- supporting industrial innovation,
- introducing cleaner, cheaper and healthiers modes of private and public transport,
- decarbonising the energy sector,
- increasing the energy effieciency of buildings,
- working with international partners to improve global environmental standarts.

Source: https://ec.europa.eu/info/sites/default/files/european-green-deal-communication_en.pdf

The benefits of the European Green Deal

fresh air, clean water, healthy soil and biodiversity

renovated, energy efficient buildings

healthy and affordable food

more public transport

cleaner energy and cutting-edge clean technological innovation

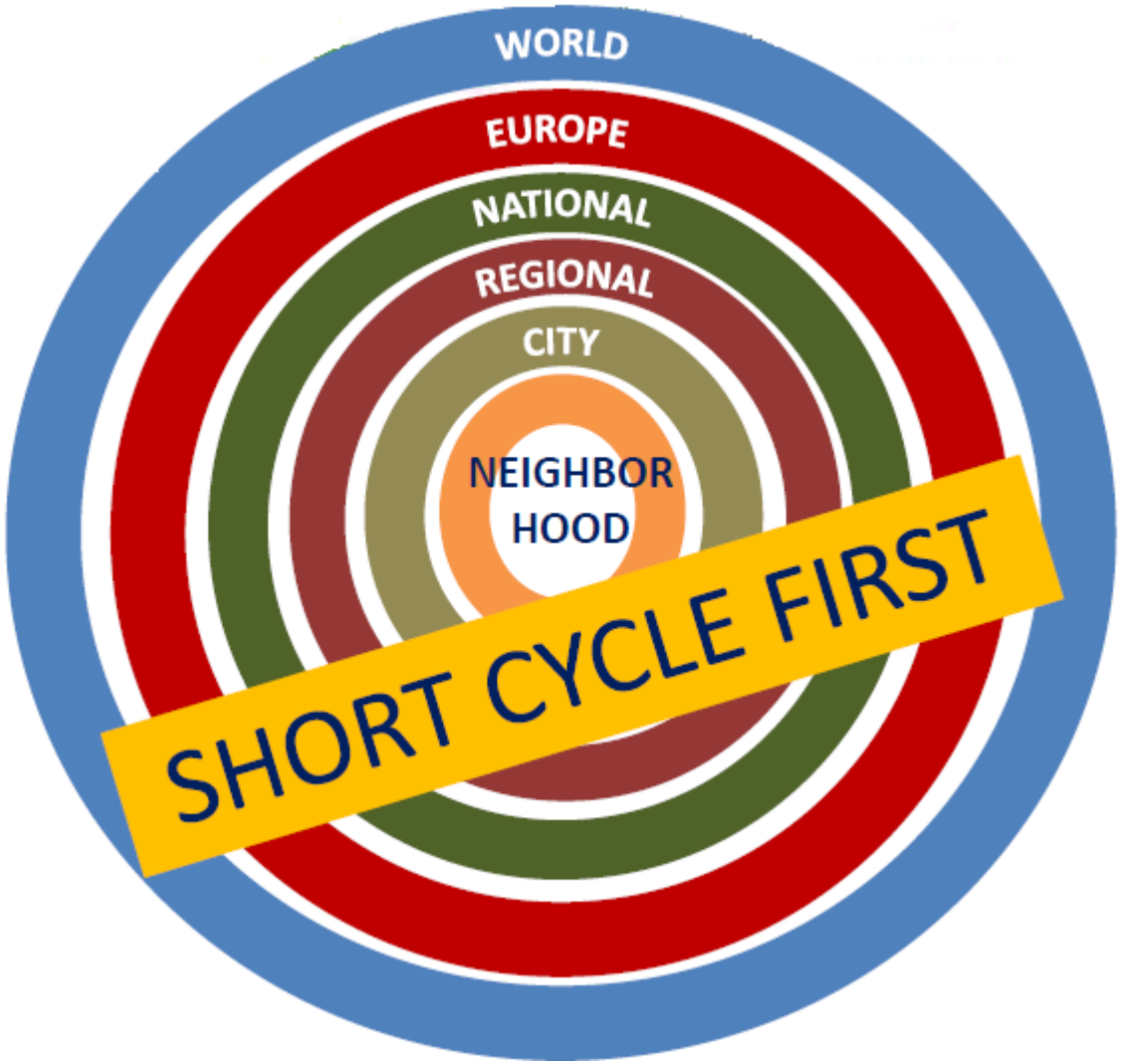
longer lasting products that can be repaired, recycled and re-used

future-proof jobs and skills training for the transition

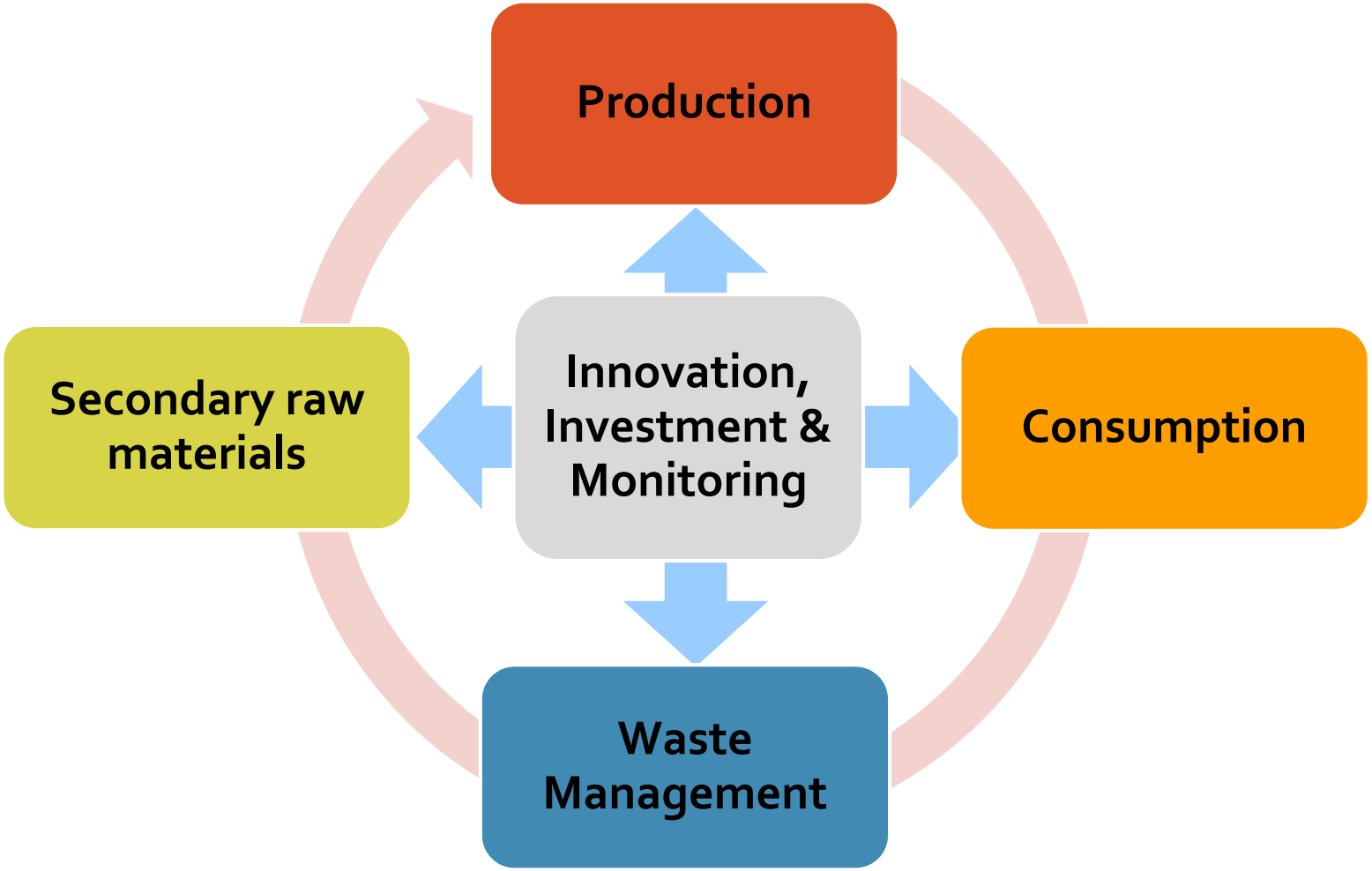
globally competitive and resilient industry

https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

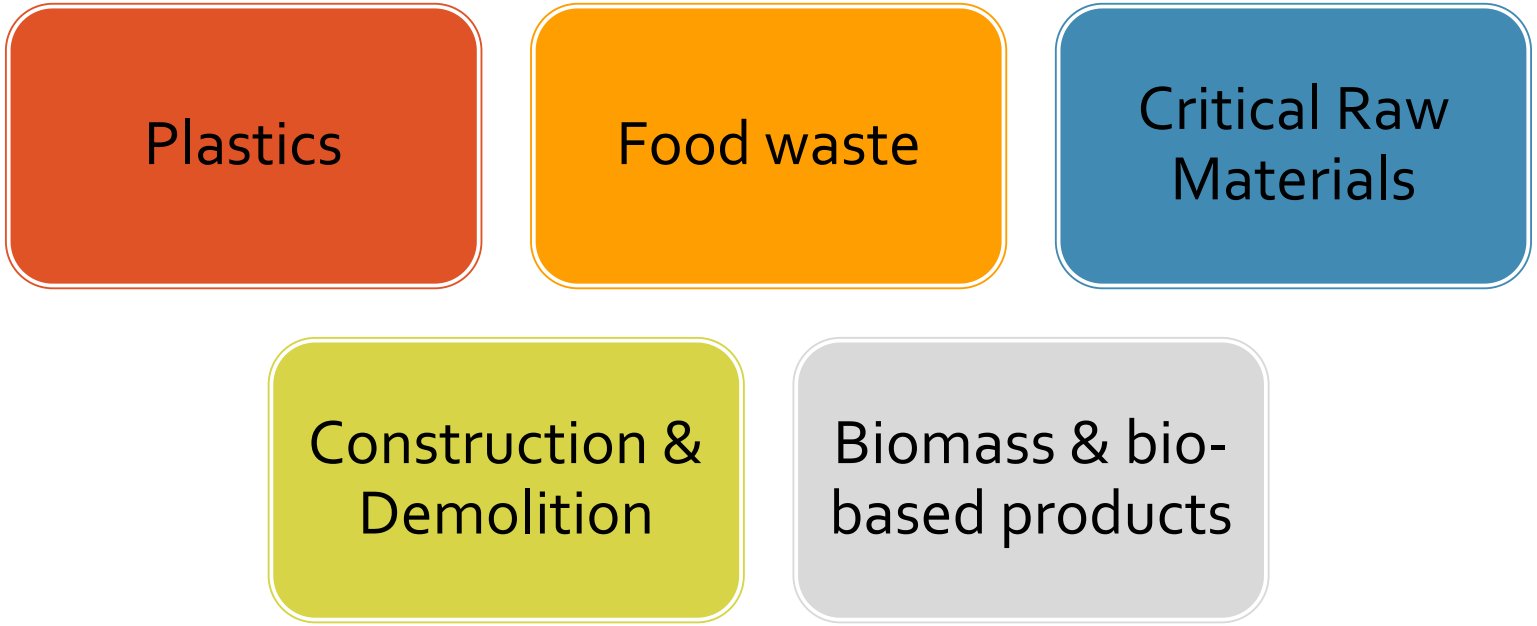
Circular economy & territorial hierarchy



Key action areas



Priority sectors



What are the amendments required? (I)

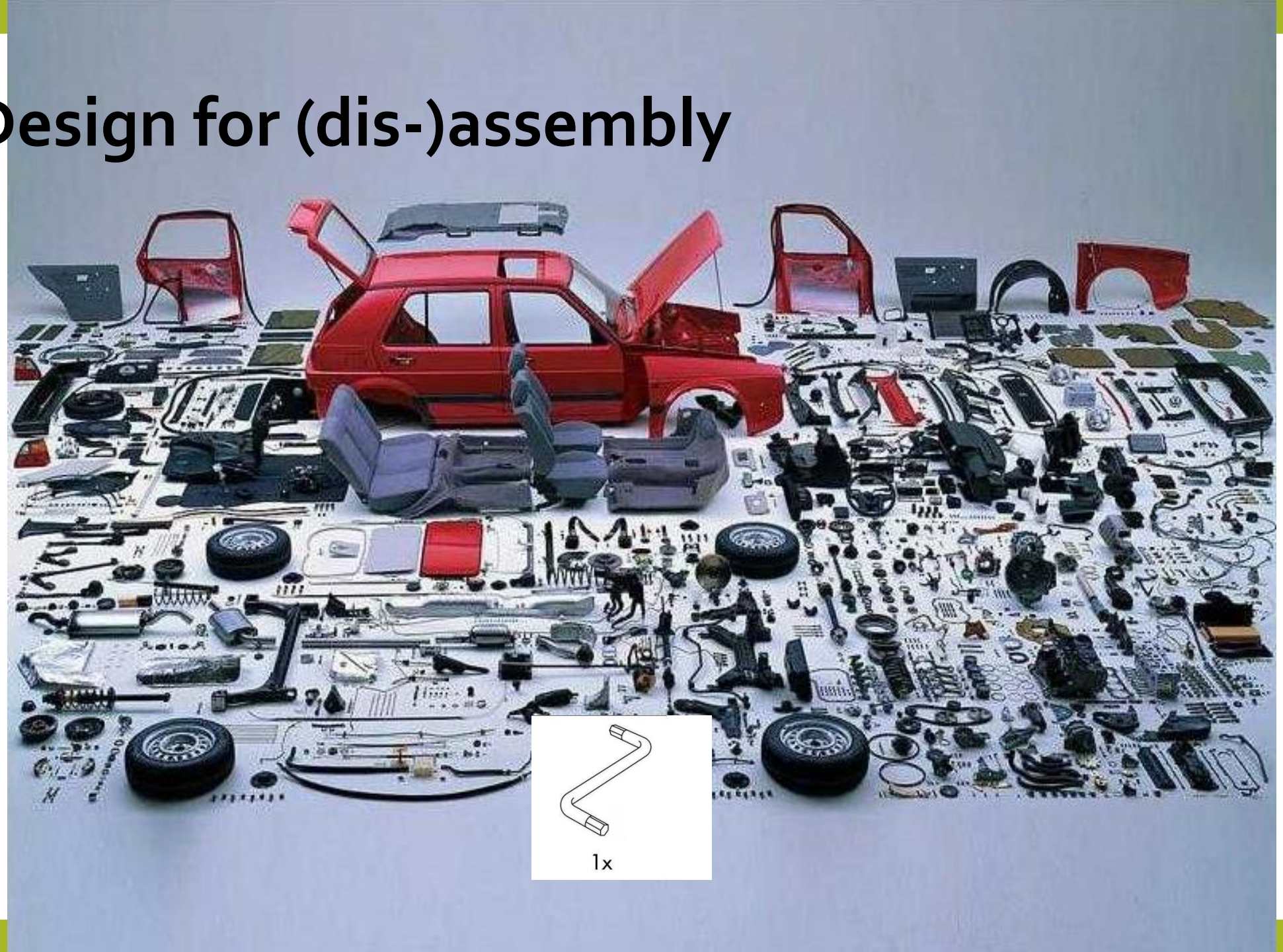
- **Reuse and recycling** of municipal **waste** in **2025 - 60%** by weight, **2030 - 65%** (for Latvia - 2025. -50%, 2030.-60%).
- Quantity of **landfilled household waste** in **2030 - 10%** (for Latvia - 2030 - 20%)

What are the amendments required? (I)

- The overall objective of **reuse and recycling of packaging waste** in **2025 - 65%** by weight, **2030 - 75%** e.g.

	2015	2025	2030
Plastics	22,5	55	55
Wood	15	60	75
Metal	50	75	85
Glass	60	75	85

Design for (dis-)assembly



The circular economy is based around three areas of action and seven pillars:

Source: French Environment and Energy Management Agency (Ademe):

5 business models of the circular economy

1) ***Circular Suppliers*** - Circular value chains are a model in which limited resources are replaced by fully renewable sources.
2) ***Resource Recovery*** - A model that uses technological innovation and the ability to recover and reuse resources. Examples include a closed recycling cycle that involves recycling waste into new resources.
3) ***Product Life Extension*** - a model that allows, through the restoration, repair, modernization or remarketing of a product, to maintain economic benefits for as long as possible. This model also involves the transition from selling things to selling services for their use.
4) ***Sharing Platforms / collaborative consumption*** - (sharing economy) – a model that is based on the exchange of goods or assets with a low utilization rate.
5) ***Product as a Service*** - a model in which customers use products through a "lease" with payment upon use.

https://www.oecd.org/environment/waste/policy-highlights-business-models-for-the-circular-economy.pdf

Skills to make the Circular Economy work: Systems thinking is central

Design

Design products for modularity, upgradability, reparability, disassembly

Business Models

Managed service
After service & repair
Buy back and re-use
Pay-per-use
Software

Collaboration

Cross-chain and cross-sector collaboration,
IT tools

Reverse Logistics

Reverse supply chain for Remanufacturing
Upgrade
Parts harvesting
Materials recovery

Market trends - consumer values and expectations

Personal health and safety

Children's cult

Easily and conveniently accessible (at the touch of a button)

Technology and artificial intelligence

Live longer and be environmentally friendly

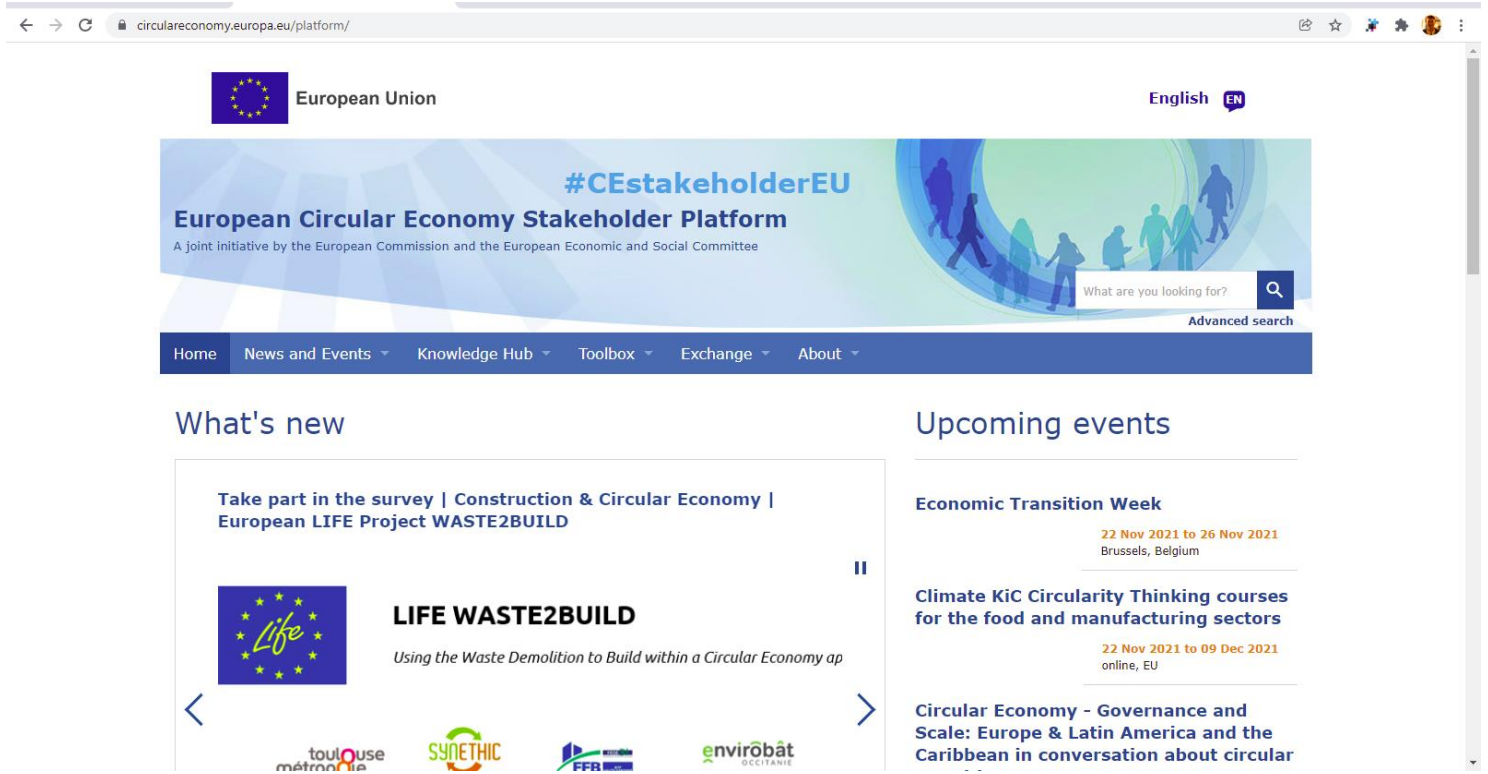
Not "what", but "why" do I need it?

"LESS IS MORE"

CIRCULAR ECONOMY - VALUE & BENEFIT LEVERS

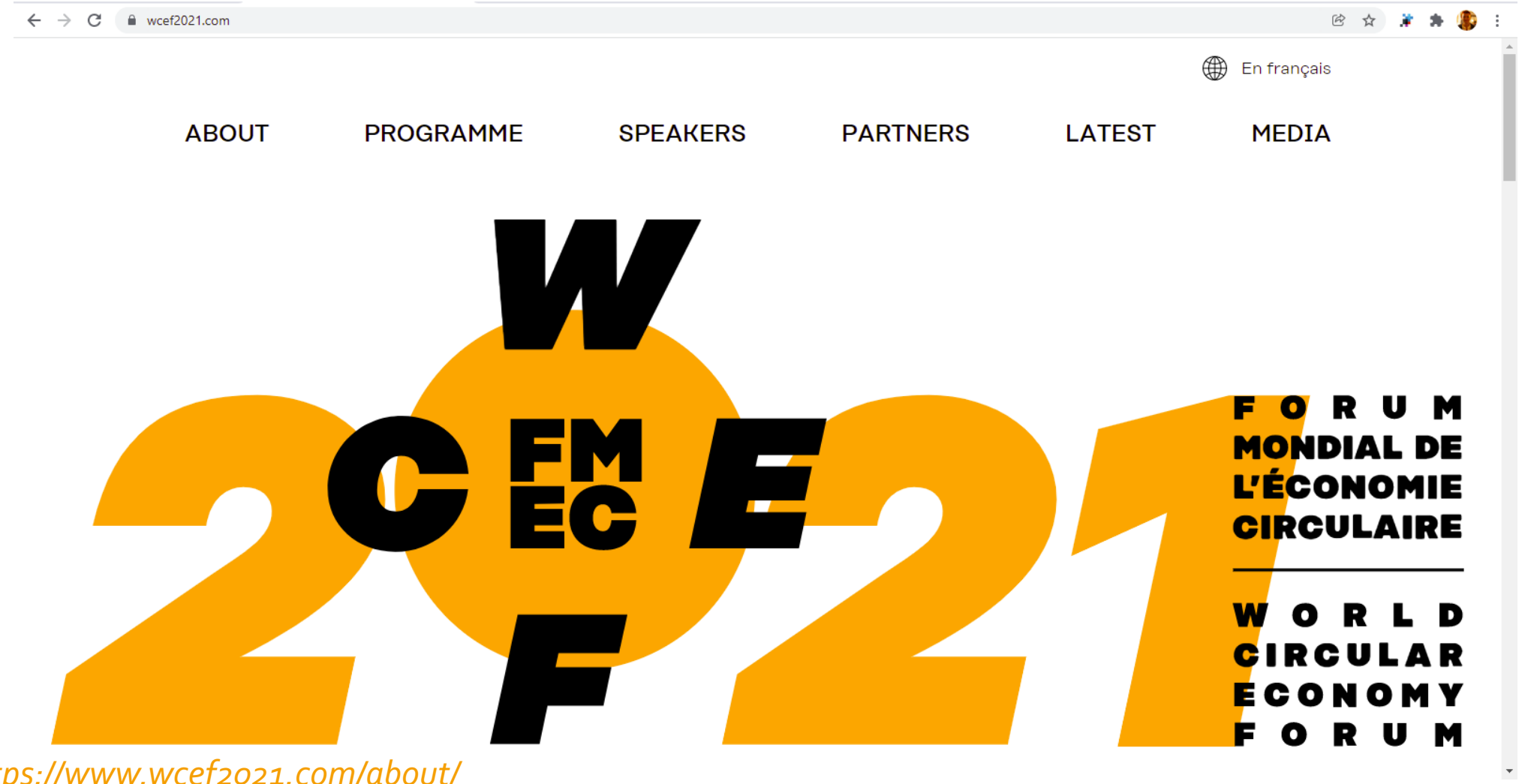
A platform for stakeholders in the circular economy

- The website is available from 10.11.2017. It brings together best practices, commitments, policy statements, strategies, reports and research.



https://circulareconomy.europa.eu/platform/

The annual World Circular Economy Forum (WCEF)



https://www.wcef2021.com/about/

Industrial symbiosis

Industrial symbiosis is the collaboration of two or more manufacturing enterprises / plants, as a result of which the waste and / or by-products of one company become the raw materials of another company

Landfill as a basis for industrial symbiosis

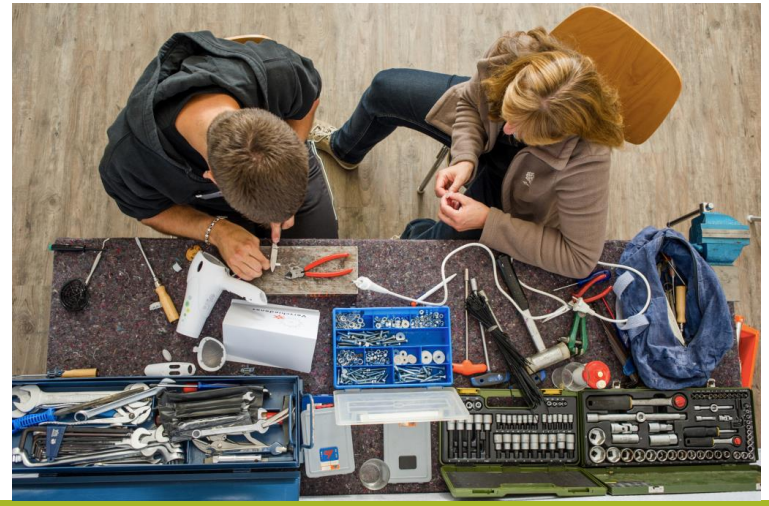
Industrial symbiosis possible in following fields:

- Wood processing,
- Agriculture, greengouses;
- Greening – low quality compost production;
- Domestic heating;
- Construction materials;
- Fish and pig farms.

Circular economy – a shift to sharing economy

- From owning to using;
- Libraries of things;
- Repair cafes, etc.

FASHION FORWARD / ONEINDIGE KLEDINGKAST / START AL VANAF € 19,95 PER MAAND
/ EINDELOOS EXPERIMENTEREN EN COMBINEREN / TRY BEFORE YOU BUY



High quality, natural and longer lasting

Natural hemp fiber

Transforms, changes design and application

The clothes grow with the child

www.punainennorsu.com

Reuse – repurpose - redesign

Benefits

- ☑ New offer for customers
- ☑ Customer satisfaction is increasing
- ☑ Higher product quality

Take back used and reuse (reverse logistics)

OTRĀ ELPA

Social effect on human well-being

REPAIR, REFURBISH

“Zero waste” shops - strangers in the world

veikalsturza

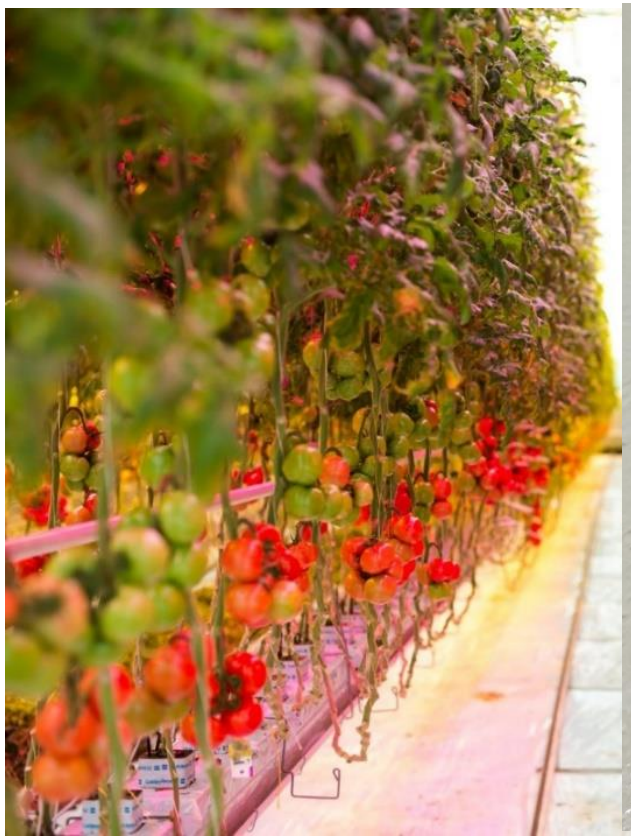
beziepakojuma_burka

bodnica_zero_waste
Riga, Latvia

bioteka.lv
BIO.LV

But growing trend…

Not standartised tomatoes are produced in juice



Benefits

- ☑ Efficient use of resources and waste
- ☑ Waste creates added value and income
- ☑ New products

Sharing of cars/ ride

Sell solution insted of product

Upcycling end-of-life tyres

Construction, interior, exterior

Elastic rubber blocks and bricks

Composite panels

Cement composite

Roadway (asphalt) material

Rubber floor material: tiles, plates

Athletic, golf-course, tennis and playground surfaces

Artificial lawn materials and turf

Car and transport industry

Car mud flaps and mats

Ballast mat for high-speed trains

Other consumables

Animal mats

Carpet backing material

Inferior shoes bottom and heels

https://rubrig.com/products/3d-rubber-shapes/

Less chemicals, natural and local food

The flour is so white that it sells itself

https://kotinuveikals.lv

Benefits

- ☑ Risks are reduced
- ☑ Logistics, sales and packaging costs are reduced
- ☑ Green reputation

Buy fewer products but … spend less on healthy recreation and adventure

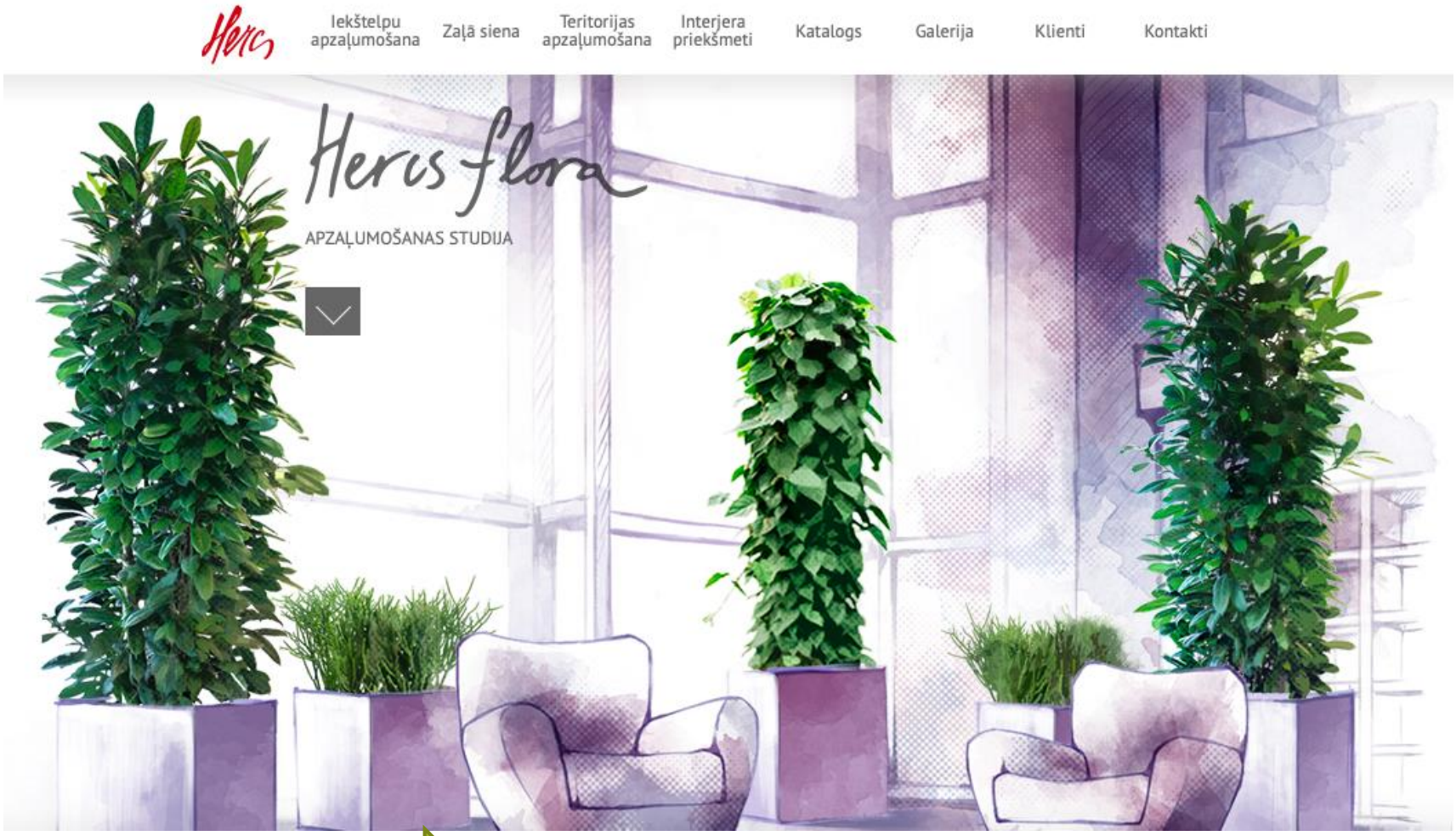
www.flowpark.eu

Active adventure trails near supermarkets and shopping centers

Benefits

- ☑ New offer for customers
- ☑ New sources of income
- ☑ Green reputation

Sell a service, not a product



Benefits

- ☑ New business model
- ☑ Stable cash flow in the long run
- ☑ Loyal corporate customers

Downcycling vs Upcycling

WHEY

Leftovers from cheese and cottage cheese production

Produce:

- Protein Smoothy

- Lactose for icecream

- Cosmetics

Feeding animals

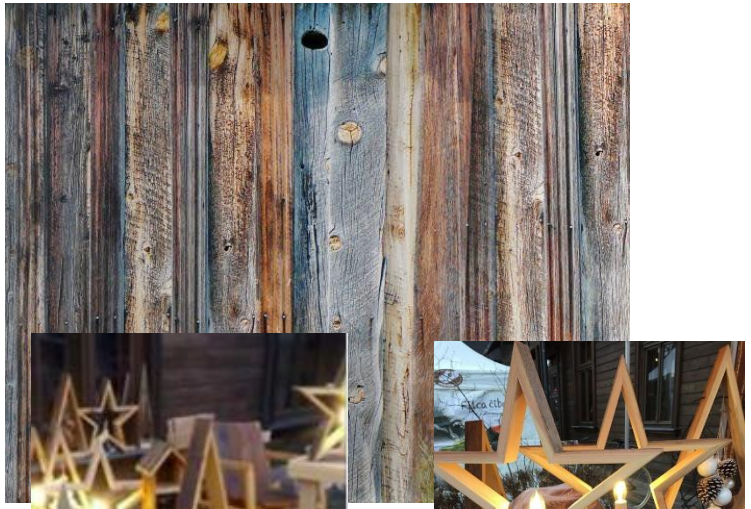
Downcycling vs Upcycling

Woodchip as a heating material

Woodprocessing

Briquettes, granules

Rida.lv



Valmiermuiža+Liepkalni

"If everyone...is the network"

What is E-Waste?

Electronic Waste

(E-Waste)

or called 'WEEE'
(Waste from Electrical and Electronic Equipments)

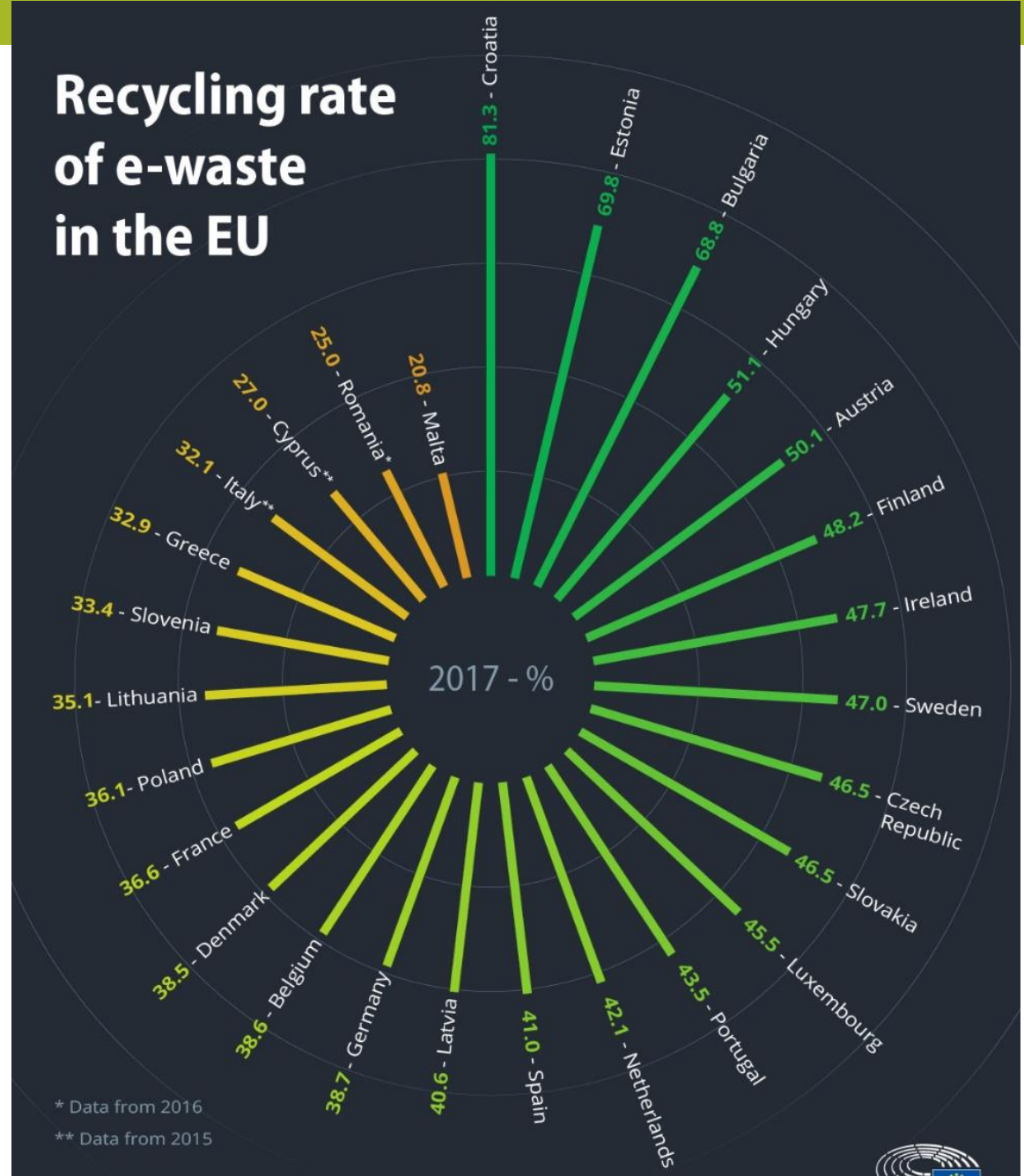
Is Waste from Electrical and Electronic Equipment which uses electricity or magnetic fields to non-standard work (Off-spec) or expired to use or outdated.

Types of Electronic Waste

Products	Average Lifetime
Television	18 years
Refrigerator	14 years
Washing Machine	12 years
Air Conditioner	10 years
Computer	7 years
Computer Monitor (CRT)	9 years
Mobile Phone	2 years
Mobile Phone Battery	1 year
Fluorescent Lamp	1 year
Dry Battery	2 months

Refer: Pollution Control Department,
Ministry of Natural Resource and Environment

Recycling rate of e-waste in the EU



* Data from 2016

** Data from 2015

Source: Eurostat (2020)

www.europarl.europa.eu/news/en/headlines/society/20201208STO93325/e-waste-in-the-eu-facts-and-figures-infographic

europarl.eu

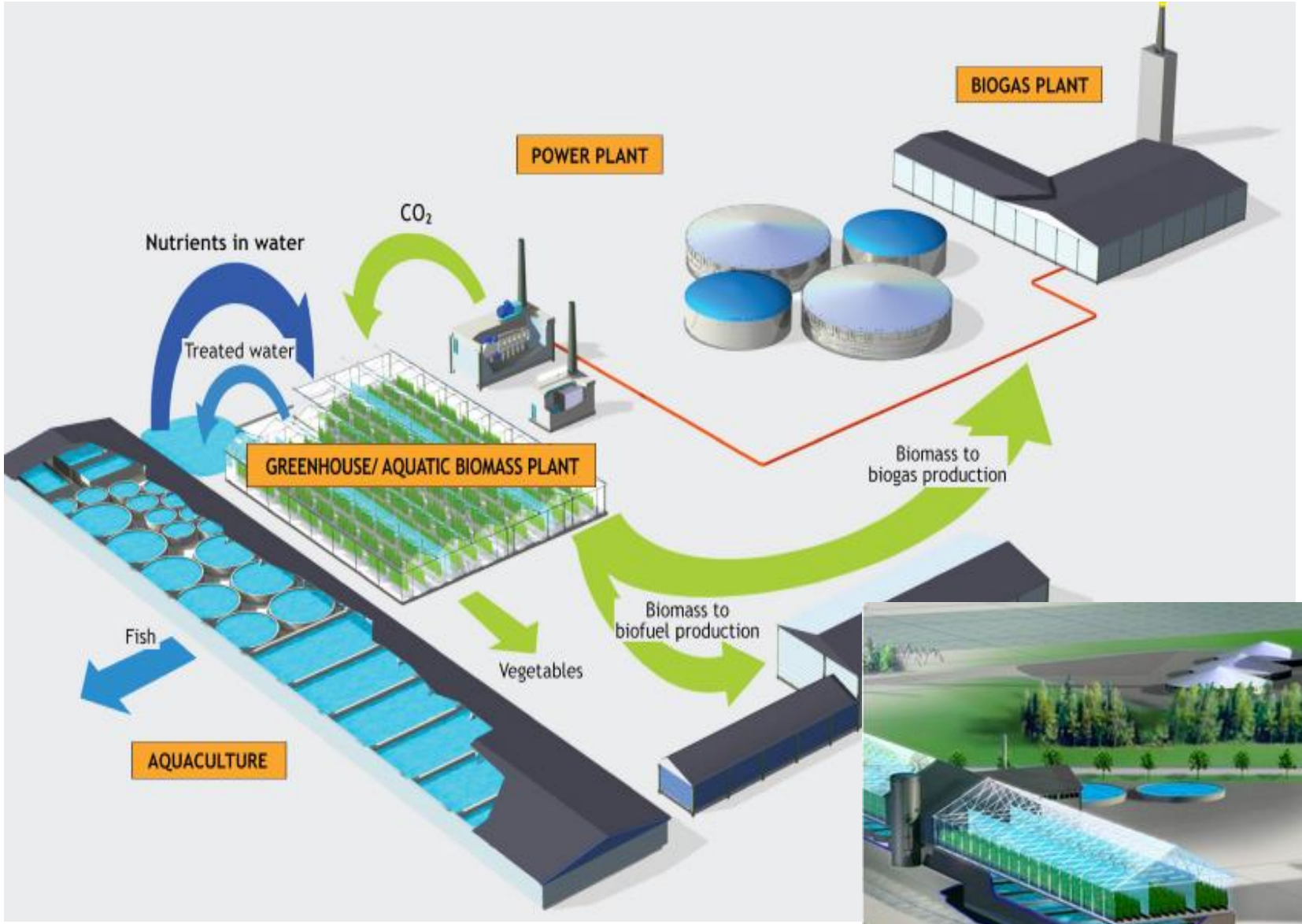
Business model with «return» and «resell» strategies

Open rent agreement of electronic devices

Take back used phones and resell

If too used – properly dispose for recycling

Waste-free management



Collaborate and combine multiple business models

Sybimar, Finland

Sharing economy examples

- **Rental or use of durable goods**

commercial projects

non-profit (social) projects

- **Sale / gift of goods**


The circular economy offers a great opportunity window.

- NATIONAL DEVELOPMENT PLAN OF LATVIA FOR 2021-2027 was approved on 2 July 2020 by decision of the Saeima of the Republic of Latvia No. 418/Lm13

https://www.pkc.gov.lv/sites/default/files/inline-files/NAP2027__ENG.pdf

- On the Action Plan for the Transition to a Circular Economy 2020-2027 year was approved on 4 September 2020 by the Cabinet of Ministers order No. 489

https://likumi.lv/ta/id/317168-par-ricibas-planu-parejai-uz-aprites-ekonomiku-20202027-gadam *(in Latvian)*

REPORT ON CIRCULAR ECONOMY IN ITALY

https://circulareconomynetwork.it/wp-content/uploads/2019/04/Proposals-and-Research-Summary-Report-on-circular-economy-in-Italy-2019.pdf

CIRCULAR ECONOMY IN ITALY (rvo.nl)

CONCLUSION

The transition to the circular economy ***has at least three undeniable advantages:***

- reduction of negative environmental impact due to a reduction in the use of resources in production and, as a result, a cleaner and safer environment;

- reduction in production costs due to a decrease in the amount of primary resources used;

- the emergence of new markets, which means the creation of new jobs and an increase in the general level of welfare.

CONCLUSION

It is necessary to rethink the concept of "circular economy" through the prism of its relevance to many stakeholders:

- public and private entities;
- mature and developing industries;
- cities and regions
- small and medium enterprises and multisectoral corporations.

A circular economy can help governments, enterprises, and consumers focus on policies, practices, and ways to achieve sustainable development goals. The economy must adapt to the finite natural resources of our planet!

CONCLUSION

- Waste is no longer a waste, but a valuable resource.
- European Green Deal is an ambitious step towards a circular economy without the possibility of operating within the business as usual model.
- Circular economy is a solution to create more green jobs.
- Green finance determines the need to include social and environmental components in the company's price.

Reading

- What is curcular economy
- Videos about circular economy
- Circular Economy | World Economic Forum (weforum.org)
- The World Circular Economy Forum 2021 - WCEF2021
- CIRCULAR ECONOMY IN ITALY (rvo.nl)

Thank you for your attention!

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